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JULY 19

1954

AF's Roger Lewis—Spurs Industry Toward Mach 3 .. 17

★

New Look at Subsidies 21

☆

Titanium—Industry Will Use It 24

★

How an Executive Fleet Makes Profit . 34

★

Vickers Plans Beyond Viscount .. 40

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Problem of manning the Air Force is getting increased attention. With build-up to 137 wings scheduled for end of fiscal 1957, AF is worried about lagging recruiting program, low re-enlistment rate.

At least 49% of the 185,000 airmen eligible for discharge in fiscal '55 won't re-enlist. AF spends $14,600 on each airman during initial enlistment. Over 200,000 personnel must be replaced in fiscal '55 and again in '56 to offset anticipated losses.

Seriousness of losing pilots is emphasized by training cost of $60,000 per man. A B-47 pilot (cross-trained as bombardier, navigator, radar operator) costs $210,000.

Aircraft industry will help re-enlistment and recruiting by stressing them in advertisements. AF may thus gain over $5 million in ads (its own budget is just over $1 million) through industry's voluntary aid. Air Force Association focused manufacturers' attention on the problem.

•

Convertiplanes will get a big boost in forthcoming Air Coordinating Committee report. ACC is expected to urge general release of the document, despite military attempts to stamp it "for official use only."

Although no convertiplane has yet flown in the U. S., one is close to the flight stage. Air Force some time ago awarded three Phase I contracts for design studies, later advanced two of them to Phase II for prototype construction. Their status:

McDonnell XV-1, with unloaded rotor, has been undergoing tie-down tests, is expected to fly soon.

Bell XV-3, tilting rotor, due to be rolled out of the plant.

There's been some delay on Sikorsky's turbine-powered S-57 (retractable rotor) which is not yet in Phase II.

•

Major policy change in procurement of helicopter rotor blades is in the mill at Air Force's Wright Field propeller laboratory.

Past AF practice has been to deal directly with blade manufacturers and handle blade procurement much the same as propellers for fixed-wing aircraft.

Under the policy switch, prime responsibility for both design and quality control cognizance will be placed with the prime manufacturer of the helicopter.

Change was reportedly brought on by long-standing difficulties experienced with blades procured by AF under direct contract with blade manufacturers.

•

Domestic trunk airlines showed 10% gain in passenger-miles in first half of 1954 compared with same 1953 period, despite continued shrinkage of total travel market and a dip in nation's economy.

Growth is now slower, however. First six months of 1953 were 22.6% ahead of 1952. Increased capacity has pushed load factors down, expenses up. Air express is down sharply, freight up slightly.

Rails are hardest hit; all classes of traffic have slumped, operating revenue is off 30%. Intercity bus business is well under 1953. Highway travel is up 3%.



The Washington View

"Subsidy" for Foreign Airliners?

Chairman Styles Bridges (R-N.H.) of the Senate Appropriations Committee is currently studying a staff-written report highly critical of the NATO aircraft procurement program.

The staff study, prepared as a result of six months of investigation of European aircraft plants, will not be released, but is to be used as a guide when the committee takes up this year's foreign-aid appropriation bill.

The report particularly condemns the use of U. S. taxpayers' money to indirectly subsidize European commercial airliner developments. It points out that many of the machine tools furnished under the Marshall Plan and much of the money which Britain and other countries might have devoted to development and production of military planes have been used to develop Comets, Viscounts, Caravelles, and similar commercial airliners.

Upgrading the R&D Posts

Congress is expected to pass quickly the Administration's request for legislation creating two additional assistant secretaries of the Army, Navy, and Air Force. The Pentagon is banking on approval as each set of posts figures prominently in reorganization plans for the three services.

Final authorization will raise to 30 the total of top civilian officials in the military appointed by the President and subject to Senate confirmation. In each of the services one of the new posts is to be designated as the assistant secretary for financial management and may act also as comptroller.

The Air Force, and the Army too, have indicated the second post will cover research and development. The Air Force decision to upgrade R&D with an assistant secretary in charge was on the basis R&D is the most pressing, continuing problem. Slated to get the new Air Force R&D post is Trevor Gardner, who is in similar work now as special assistant to Air Secretary Harold Talbott.

ACTA Adds Political Savvy

Aircoach Transport Association, representing some 40 non-scheduled airlines, did more than expand its legal staff recently by retaining Douglas G. Whitlock, as counsel. ACTA also materially strengthened its political support in securing the services of the prominent Republican attorney.

Whitlock, who is from Indiana, is a partner in a Washington law firm and formerly was executive director of the Republican National Committee. He is reputed to be one of the most influential Republicans in Washington, both in Congress (through the Indiana delegation) and at the White House. Whitlock held a high position on the Eisenhower Inaugural Committee.

FOA's Foreign Airline Build-up

Foreign Operations Administration has embarked on a program to encourage U. S. international air carriers to aid in the development of foreign airlines through management contracts or financial participation. To get its plan rolling, FOA has retained a team of industry consultants. Headed by Allan F. Bonnalie, United Air Lines' director of training-flight operations, the consulting group is to assist FOA with plans to build up airlines of friendly countries.

The Bonnalie team is first expected to survey various foreign airline companies. The initial effort will probably be concentrated in the strategic Middle East area. When it is ascertained that a company needs help to further its development, steps will be taken to interest a U. S. carrier in assisting on a business deal basis.

It is hoped that any deals between U. S. and foreign lines will not only prove mutually profitable but, at the same time, assist the foreign nation in building up its transport facilities. In addition to U. S. scheduled operators, large irregular carriers such as Transocean, Seaboard, and others may be brought into the program.

Separate Mail Rate Bill

Legislation to restore CAB's authority to set separate mail rates for airlines' domestic and international divisions is expected to be reported favorably by the Senate Commerce Committee, but there's little chance of final passage.

The Senate group last week ended a two-day hearing on the bill introduced by Sen. Pat McCarran (D., Nev.) to nullify the Supreme Court decision that CAB must set rates on a system-wide basis and must use domestic "excess" profits to offset international losses. At press time, the bill was being marked up.

Even if the Senate approved the measure this late in the session, lack of any action in the House has, for all practical purposes, killed it. Thus, for another year at least, CAB will be required to follow the Court's interpretation in the so-called "off-set" case. CAB, Delta-C&S, Braniff, Northwest, and TWA supported the legislation. Opposition came from the Post Office, Pan American, Panagra, and Seaboard and Western.

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Wayne W. Parrish

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General Manager: Leonard Eiserer
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American Aviation is published every other Monday by American Aviation Publications, Inc., Washington, D. C. Printed at The Telegraph Press, Harrisburg, Pa. Subscription rates for United States and Canada—$5.00 for 1 year; $8.00 for 2 years. All other countries—$7.00 for 1 year; $13.00 for 2 years. Entered as Second Class matter in Washington, D. C., and Harrisburg, Pa.

Change of Address: Send old address (exactly as it appears on mailing label for your copy of magazine) and new address, including zone number, if any, to 1025 Vermont, N. W., Washington, D. C. Allow two weeks for change-over.

Publishing Corporation: American Aviation Publications, Inc., Wayne W. Parrish, president; Leonard Eiserer, vice-president and general manager; Albert H. Stackpole, Eric Bramley, vice presidents; E. J. Stackpole, secretary-treasurer.

American Aviation incorporates Airports and Air Carriers, Airports, Aviation Equipment, The American Pilot, Aviation Sales and Service, U. S. Aviation and American Airports. All rights to these names are reserved.

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New York Office: Administration Building, LaGuardia Airport, New York, N. Y. Illinois 7-4100, Stephen R. Kent, director of advertising; Menard Doswell III, regional advertising manager.

West Coast Office: Park Central Building, 412 West Sixth St., Los Angeles 14, Calif. Trinity 7997. Raymond M. Schuster, regional advertising manager.

Chicago Office: 139 North Clark St., Chicago 2, Ill. Central 6-5804, A. B. Copeland, regional advertising manager.

Foreign Advertising Representative: United Kingdom—Pearl Cooper, Ltd., 213 Norfolk St., Strand, London, W. C. 2. Tel. Temple Bar 8111/2.

OTHER PUBLICATIONS . . .

American Aviation Daily, a daily news service for the entire industry. $200 per year. Managing Editor: Keith Saunders.

American Aviation Directory: twice yearly listing of products, people and organizations. $7.50 each. Managing Editor: Marion E. Grambow.

Official Airline Guide: Monthly publication of airline schedules and fares. $13.50 per year in USA; $14.00 in Canada; $15 elsewhere. Published from 139 N. Clark St., Chicago 2, Ill. Central 6-5804. Managing Editor: Robert Parrish.

Air Traffic News (incorporating Air Tariff Reports): Daily rates and tariff news. $175 per year. Managing Editor: Wallace I. Longstreth.

Air Information Division: 595 Broad Avenue, Ridgefield, N. J. Phone: Moresmere 6-8850. Edward H. Heinlein, director.

When & Where

July 27-Aug. 5—Twenty-first National Soaring Contest, Elsinore, Calif.

Aug. 4—ATA airport passenger terminal service committee mtg., Washington (D. C.) National Airport.

Aug. 9-10—American Society for Quality Control conference, U. S. Grant Hotel, San Diego, Calif.

Aug. 9-11—IAS mtg. on turbine powered air transportation, Benjamin Franklin Hotel, Seattle.

Aug. 18-19—National Aeronautics Assn. annual mtg., Hotel Fontenelle, Omaha, Neb.

Aug. 19-22—Air Force Assn., 8th annual convention, Omaha, Neb.

Aug. 31-Sept. 2—Scintilla Div., Bendix Aviation Corp. ignition conference at Sidney, N. Y. plant.

Sept. 4-6—National Aircraft Show, Dayton, Ohio.

Sept. 13-24—Instrument Society of America, First Int'l Instrument Congress & Exposition, and 9th Nat'l Instrument Conference & Exhibit, Philadelphia.

Sept. 22-25—Nat'l Assn. of State Aviation Officials, annual mtg., New Washington Hotel, Seattle.

Oct. 5-7—Champion Spark Plug Co. 10th annual spark plug and ignition conference, Hotel Secor, Toledo, O.

Oct. 11-15—American Institute of Electrical Engineers fall mtg., Morrison Hotel, Chicago.

Oct. 18-22—National Safety Council, mtg. of aeronautical section, Conrad Hilton Hotel, Chicago.

Oct. 27-29—National Business Aircraft Assn. mtg., Hotel Adolphus, Dallas, Tex.

Nov. 8-10—National Aviation Trades Assn. annual convention, Biltmore Terrace Hotel, Miami Beach, Fla.

Nov. 14-17—Aviation Distributors and Manufacturers Assn., 12th annual mtg., Mayflower Hotel, Washington, D. C.

Nov. 17-19.—Calif. Assn. of Airport Executives mtg., San Jose, Calif.

INTERNATIONAL

July 20-Aug. 3—World Soaring Meet, Great Hucklow, England.

Sept. 7-12—Society of British Aircraft Constructors, Aircraft Show & Flying Display, Farnborough, England.

Sept. 13-17—IATA, 10th annual mtg., Paris.

Sept. 19-21—Int'l Northwest Aviation Council 18th annual convention, Hotel Vancouver, Vancouver, British Columbia.

Sept. 20-29—Federation Aeronautique Internationale general meeting, Istanbul, Turkey.

Sept. 21—IATA, Traffic Conferences, Italy.

Oct. 5—ICAO, air navigation mtg. for the North Atlantic region, Montreal.

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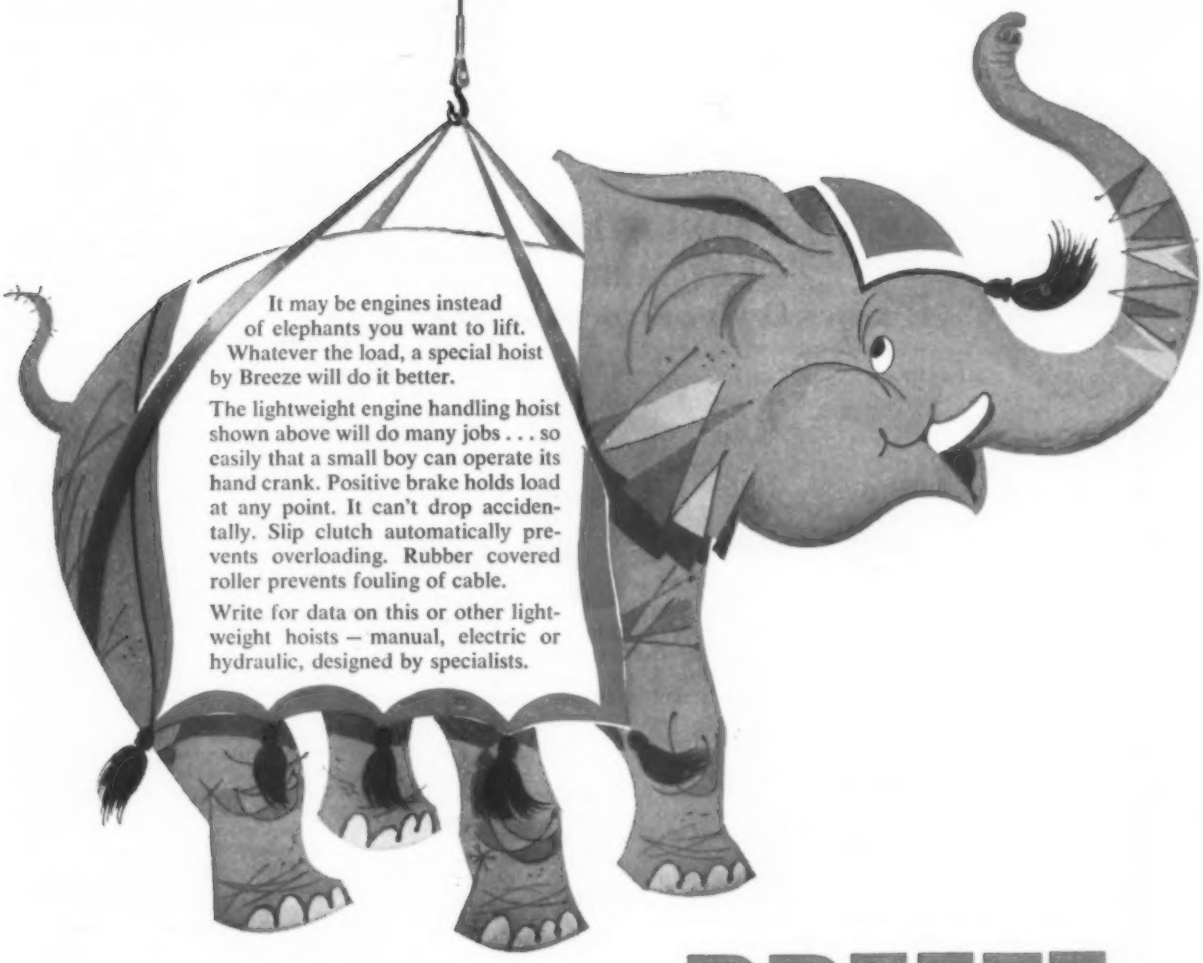
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Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N. W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

ADM. HORNE'S SOURCE

To the Editor:

Like you, I have considerable respect for Admiral Charles Horne, but you have given him credit which is not rightfully his.

June 21st issue, your editorial page credits Horne with a masterpiece speech on logistics. On page 19, same issue, you quote some of the speech.

The whole thing was lifted almost verbatim from the June issue of the magazine *Air Force* from the feature article by Ed Hogan. The least you can do is publicly credit Hogan with that fine speech by Horne.

C. R. BULLOCK
6336 Orchid Lane
Dallas 30, Texas

(Reader Bullock is only partially right. All credit to Ed Hogan and AIR FORCE *magazine, but the real source for both Admiral Horne and Hogan is "Logistics for 1956," a very fine brochure published by the Office of Assistant for Logistics Plans, Deputy Chief of Staff, Materiel Headquarters, USAF, and just declassified a few months ago.—Ed.)*

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"UNFAIR TO PILOTS"

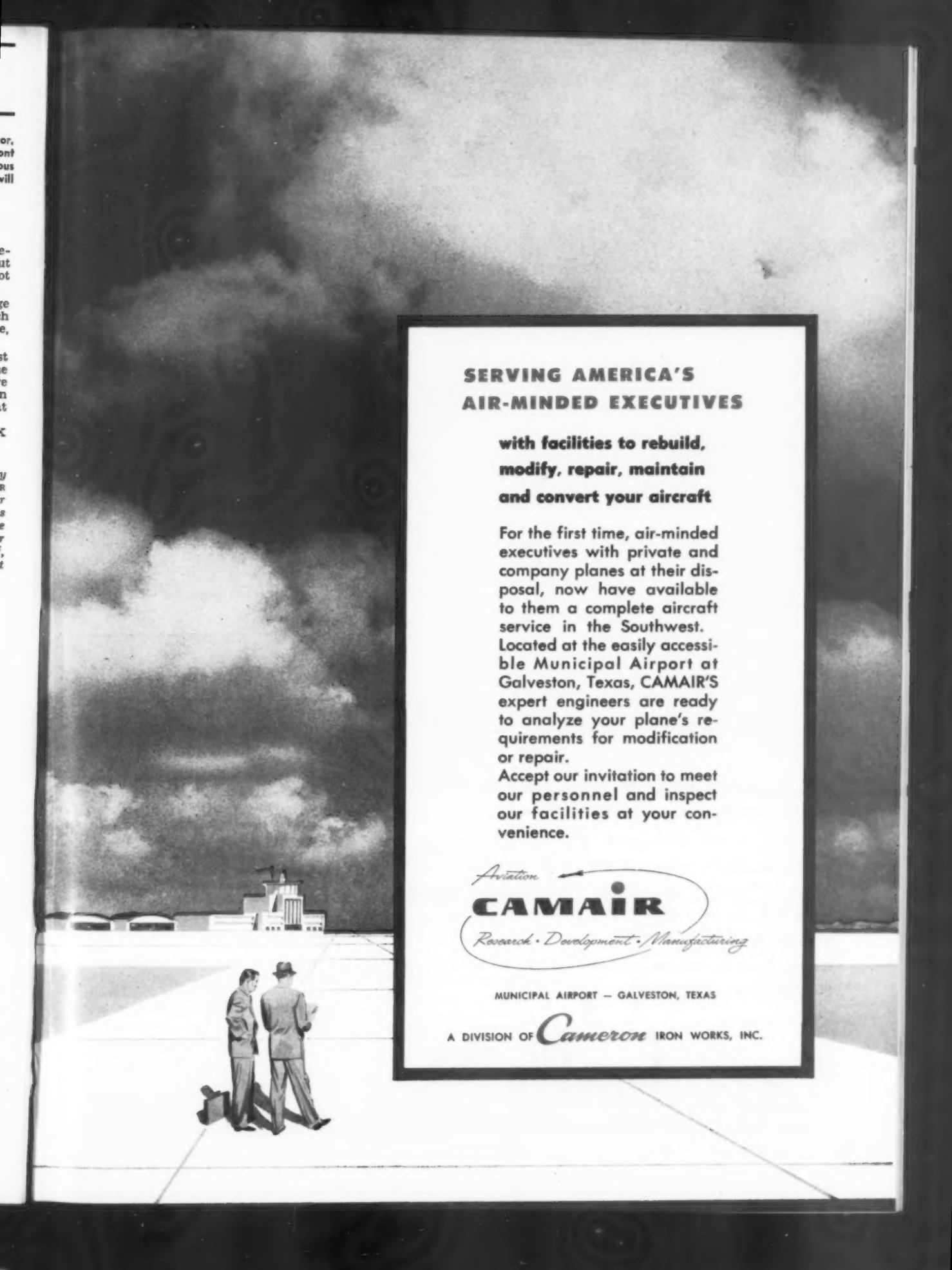
To the Editor:

The column, *The Washington View*, in the June 21st issue of AMERICAN AVIATION contained an item "Fifth Amendment Pilots" which creates a very unfair impression of two United Air Lines pilots.

In my duties as an Air Line Pilots Association accident representative I participated in the investigation of the Michigan City collision and attended the CAB hearings relative thereto; at those hearings the United pilots did not invoke the Fifth Amendment, but merely claimed the "privilege against self-incrimination" afforded them by section 1004(i) of the Civil Aeronautics Act.

For your information, section 1004(i) of the Civil Aeronautics Act reads in part as follows: ". . . no individual shall be prosecuted or subjected to any penalty or forfeiture for or on account of any transaction, matter, or thing concerning which he is compelled, after having claimed his privilege against self-incrimination, to testify or produce evidence, documentary or otherwise, except that any individual so testifying shall not be exempt from prosecution and punishment for perjury committed in so testifying."

Congress saw fit to include section 1004(i) in the Civil Aeronautics Act and the CAA would be brazenly flaunting the will of Congress to use "compelled" evidence introduced at the CAB hearings to suspend the licenses of these pilots. The suspension of a pilot's license


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would surely be a "penalty or forfeiture" which is specifically prohibited by section 1004(i).

It is important to keep in mind that the purpose of a CAB hearing is to determine the probable cause of an accident and gain knowledge which may prevent a repetition of such accidents. In contrast, an action by the CAA to suspend a pilot's license is an entirely different proceeding and Congress has said that it is not permitted to use self-incriminating, compelled evidence against the pilot.

Unfortunately, the Fifth Amendment, which is part of our American Bill of Rights, has acquired a rather objectionable reputation lately as a result of its use by suspected communists, and it seems very unfair of you to use it as an adjective in an attempt to smear pilots who actually only claimed their legitimate rights under the Civil Aeronautics Act.

CAPTAIN R. A. STONE
United Air Lines
4535 Elm Street
Downers Grove, Illinois

•

RADIO OLD-TIMERS

To the Editor:

I appreciate the comments made in your *Extra Section* of the June 7 issue of AMERICAN AVIATION. There is no question in my mind but what this very fine piece of publicity on your part may result in an organization being formed of the real old-timers in aviation radio. The attendance of old-timers at the RTCA meeting certainly repaid me for any effort I put in stirring up this interest.

F. C. "Mac" McMULLEN
Western Electric Company
195 Broadway
New York 7, N. Y.

Books

Slide Rule. *By Nevil Shute. William Heinemann, 99 Great Russell St., London, W.C.1. $2.52.*

Nevil (No Highway) Shute is a brilliant engineer who turned to novel writing as a relaxation, then found it a more lucrative source of living. The story of his engineering career between the wars is told with a novelist's skill and an engineer's frankness. It starts in Australia a year or so back when a heart attack made Shute reluctantly decide to quit piloting, then tells his story in chronological sequence. The building and flying of Britain's last successful airship, R-100, and its political demise following the disaster to the officially designed R-101 are truly described. The scathing comments on the deficiencies of civil (and military) servants hold true today.

The vicissitudes of an airplane company, Airspeed, between the wars is fascinating reading—particularly the comparison in prices.

This is aviation history told entertainingly and with a moral pointed by an informed observer. . . . JHS



Carrier Based Jets to have Radar Guided Missiles

NAVY'S AIR-TO-AIR SPARROW 1 IN PRODUCTION

THE STORY BEHIND THE STORY:

■ On May 12, newspapers from coast to coast carried headlines like the ones above, announcing the Navy's newest weapon of defense–Sparrow I–and the beginning of volume production for operational use in the fleets.

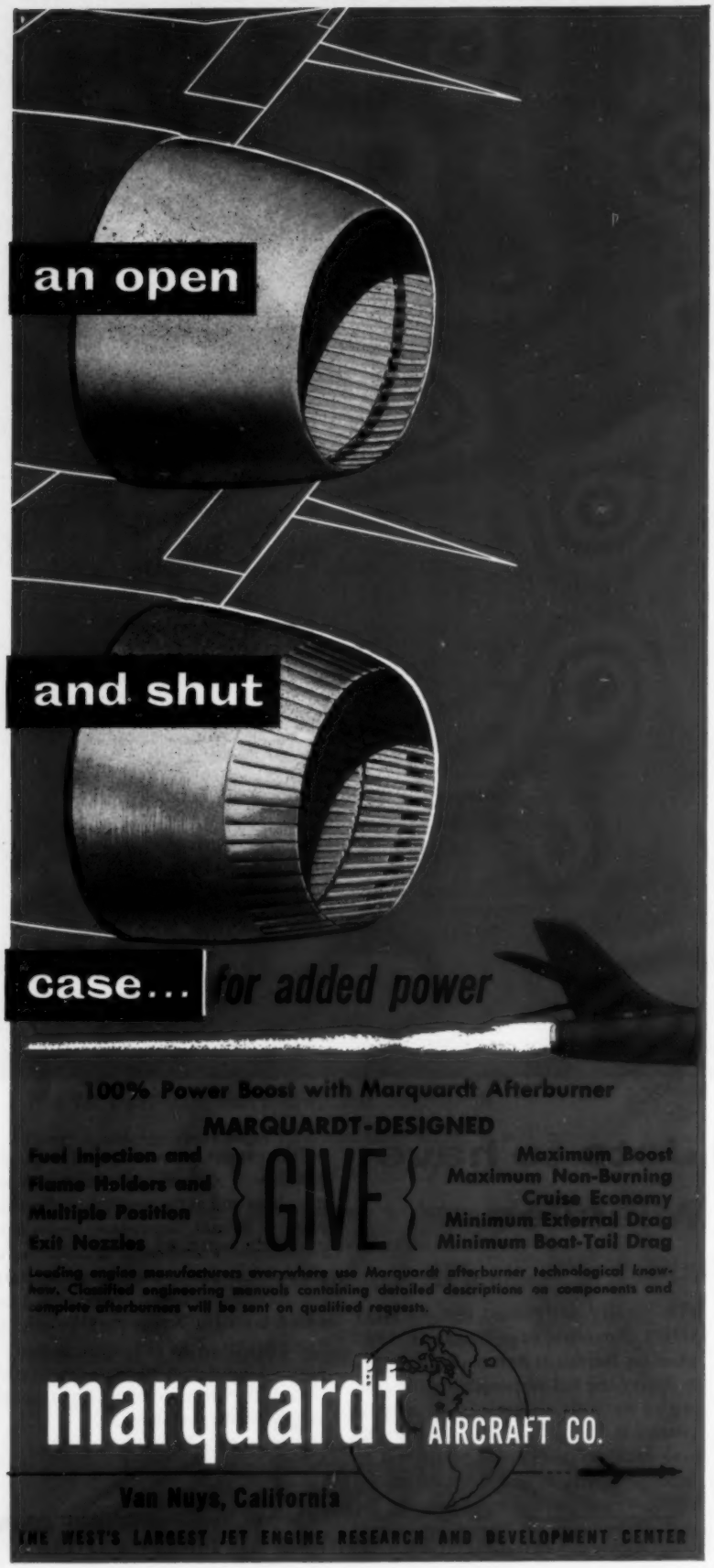
■ Ahead of these headlines were 7 years of intensive cooperative effort shared by the Navy's Bureau of Aeronautics and Sperry.

■ Originally designated project HOT SHOT, Sparrow began back in 1947 when the Bureau of Aeronautics assigned to Sperry the full responsibility of creating an entirely new air-to-air missile system. It had to be light and compact – so multiple units could be carried by fighter-type jets. It had to be deadly accurate – capable of outmaneuvering the swiftest bombers an enemy could produce. And it had to be practical–suitable for large-scale production.

■ The rocket-powered, radar-guided Sparrow I, coming off the production lines here and at the new Sperry Farragut plant in Bristol, Tennessee, meets these requirements–and more. It embodies the proved features of more than 100 different missiles designed, constructed and tested during a 7-year period – and the finest brains of an organization that has devoted more than 40 years creating and manufacturing automatic flight control and fire control systems.

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Airplane Design, Tenth Edition. *By Karl D. Wood, Professor and Head of Department of Aeronautical Engineering, University of Colorado; published by author and distributed by University Bookstore, Boulder, Colo. $7.50.*

Highlight of this comprehensive edition of interest to aeronautical engineers is expanded treatment of helicopter design, with illustrative examples. It also contains extensive data on new materials and methods, including glass-plastics and titanium, places emphasis on economic design of light planes and helicopters. This latest edition, printed with improved plastic binding, is brought up-to-date through April, 1954.

. . . HSB

Selected Combustion Problems. *Edited by The Advisory Group for Aeronautical Research and Development of the North Atlantic Treaty Organization. Butterworths Publications Ltd., 88 Kingsway, London, W.C.2.*

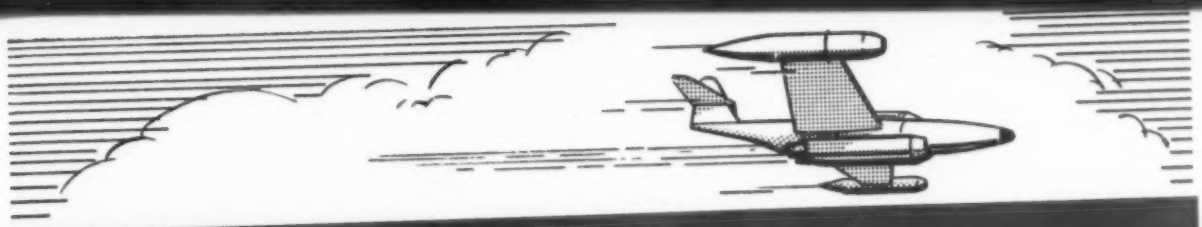
To stimulate research into combustion problems of turbojets and rockets, NATO's AGARD group organized a colloquium on the subject at Cambridge University, England, last December 7 to 11. This volume is a collection of the discussions held at that time on laminar flame propagation, turbulent combustion, solid and liquid propellants, and technical combustion problems. Four of the papers are in French, with English summaries.

. . . WAK

Strategy For The West. *By Sir John Slessor. 180 pp. $3.00. William Morrow & Co., New York.*

This is "must" reading for anyone in aviation. The flyleaf says it is a step-by-step program by Marshal of the Royal Air Force Slessor for checkmating the threat of world communism. But those in aviation will be much more intrigued by the analysis of air power and the advent of the H-bomb. The first chapter is brilliant and is almost self-contained under the heading of "The Real War." Subsequent chapters become more detailed and cover the author's ideas about checking communism. If the author isn't always on firm footing when dealing with political matters, one can scarcely challenge his authority in the realm of air power. This is an important new book.

. . . WWP



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No passenger planes out-perform those built in the U.S.A. Measured by accepted standards – dependability, speed, comfort, safety, economy of operation and maintenance – American-made air transports are the backbone of world aviation. Almost every major airline in the world flies one or more types of U. S. passenger planes.
In military aviation, too, America's airliners are serving best. Versions of every modern type are a part of the Military Air Transport Service, ready for any national emergency. When even better passenger planes are built, it will be done in America – where aviation was born. This advertisement is published in the interest of America's aircraft industry and its customer airlines by
CONVAIR
A DIVISION OF GENERAL DYNAMICS CORPORATION

Personal View

By WAYNE W. PARRISH

Incentive for the Locals

IT IS QUITE IN ORDER to concede at the outset that the objective of the Eisenhower-adopted Air Coordinating Committee's civil aviation policy of two months ago was to provide a measure of stability to the air transport industry and to light the path for a progressive reduction in mail pay and/or subsidy.

Yet when one explores the avenues of implementation of this subsidy-reduction goal, there are as many different opinions as there are individuals who express them and a very considerable confusion over just where the subsidy is to be cut. Especially noteworthy is the case of the local service carriers who are currently having the jitters over their uncertain futures.

Some of the trunkline executives who are most positive about the need for reducing subsidies are equally positive that they do not want to absorb any local carriers or even as much as a single stop. The trunklines can't take over the locals without going into the red pronto. This leaves just two alternatives, one being to cut station stops and routes and even systems rather sharply and the other, which is being pushed to a limited degree by CAB, is to reduce subsidy gradually by forcing more efficiencies by the use of incentives on the carriers themselves.

We are favorably attracted to the suggestion by the aviation securities committee of the American Bankers Association of America, as reported elsewhere in this issue, to award incentive contracts to local carriers and have these contracts subject to renegotiation, much the way it is done for many other types of government contracts. Handled well, this system could provide genuine incentive to the carriers and could reduce the cost to the government.

While we think the current emphasis on the $25,000,000 annual cost of paying local carriers is quite shaggy when one remembers that the U.S. has granted, loaned, or lend-leased, without repayment, some $76 billions (averaging over $2 billions a year) to the United Kingdom alone since 1917, the local carriers still have a lot left to do in keeping costs down and eliminating flights and stops which have proved, after test periods, to be highly unprofitable. The CAB itself can move much more forcefully toward this end. In a large sense a lot of local carrier problems originated in the highly-political genesis within CAB of some of the routes and stops. Sensible application of transportation economics is needed, nothing else.

The $104,500 Triple Play

SENATOR PAT McCARRAN is digging into the mysterious $104,500 management survey which the Department of Commerce foisted, without authority of Congress, on the Civil Aeronautics Administration. We hope he keeps on digging until the entire report is made public.

It seems that an assistant secretary of commerce for administration is one James C. Worthy. It took a lot of prodding by Senator McCarran, since evasion is the keynote today of executive department personnel in appearances before Congress, to get Mr. Worthy to admit that he awarded the contract to Cresap, McCormick & Paget of Chicago without asking for bids, and that he had known a senior partner of the firm for 20 years. The Senator also forced an admission that Mr. Worthy had acted without any authority of Congress.

Meantime, Under Secretary of Commerce Robert B Murray, Jr., who has taken it upon himself to run the CAA to his own liking, has bottled up the findings under strict censorship and an ultimatum of dire things to come if there are any leaks. Ordinarily a report of this type is bottled up only if it is critical of higher-ups or if it is ridiculous. Maybe Senator McCarran can find out how many control towers could be operated for that $104,500. Or maybe the Senator and all of us should quit and partake of those $100, $150, and $200 *per diem* fees which the management firm collected from the taxpayers at Mr. Worthy's kind behest.

The Bigger View

DOWN in the far southwestern corner of the United States where he can take a long view of the country as well as reach out easily for a perspective of the gigantic forces which the airplane has placed in motion, lives a tall, lanky gent with a keen mind and an unusual amount of imagination.

Early this year when the warm sunshine was dancing off the white spray along the rocky Southern California coast while the rest of the country was cold and gloomy, Emmett McCabe saw something he didn't like in an advertisement of another aircraft company. He didn't like it because what he saw was petty. Aircraft advertising, he thought, should be as uplifting and stimulating and as broad as the skies through which the airplanes fly.

So Emmett McCabe, who is advertising director for Convair at San Diego, dreamed up an ad which would be an inspiration for the entire U.S. aviation industry. It would show a Convair 340, of course, but it would also show aircraft built by other companies to symbolize the great pride this country should have in spreading this new form of transportation to all parts of the world. In this issue appears Mr. McCabe's dream of many months ago, illustrating and demonstrating the stature of both Mr. McCabe and Convair. There are times when bigness counts for a lot even in the most competitive world.





NOW-In Cleveland, Ohio

and at most major airports throughout the world—

—the superior Hertz Rent-A-Car Service brings thousands of new passengers and additional revenue to airlines! *And you can prove it to yourself in exactly ninety seconds!*

Why Hertz brings more revenue to your airline

1. Hertz originated the Plane-Auto Plan. Many people who normally drove from city to city—mainly because they needed a car at their destination—now take a plane for speed and comfort . . . because they know they can rent a car from Hertz on arrival.
2. Only Hertz assures them of a car wherever they go . . . because only Hertz serves more airports and more cities throughout the world.
3. Hertz spends nearly $1,000,000 a year in advertising the Plane-Auto Plan in national magazines. No other rent-a-car company even approaches this figure!

Why your passengers prefer Hertz

1. Because of extensive advertising, Hertz Rent-A-Car has wide acceptance . . . and therefore people demand it.
2. Hertz offers 30 years' experience in courteous rent-a-car service . . . with nearly 800 stations in over 550 cities throughout the world.
3. The 8,600 cars in the Hertz System are clean, new, properly conditioned for dependable driving. The reasonable rate includes all gasoline, oil, Public Liability, Property Damage, Fire and Theft Insurance, and $100.00 deductible collision protection—*at no extra cost!*
4. The Hertz System has issued 1,500,000 Hertz Charge Cards and Courtesy Cards to qualified individuals and firms—and these assure a huge consistent business. Hertz also honors Air Travel Cards.

ONLY Hertz offers all these advantages. Therefore, get your ticket sellers and information clerks to ask your passengers this simple question: **"May I reserve a Hertz car for you at your destination?"** It will pay off in more customer good will . . . and in extra passengers and revenue for your airline.

Promote the Hertz Plane-Auto Plan in all your advertising, displays, folders and other advertising and promotional programs.



For complete information write:

HERTZ *Rent-A-Car* SYSTEM **Dept. C74, 218 S. Wabash Ave., Chicago 4, Ill., Phone: WEbster 9-5165**

Industry Spotlight

• Use of Titanium in the Curtiss-Wright J67 was touch-and-go for awhile, according to testimony before a Senate subcommittee looking into production of the metal. Only reassurances about the supply of the metal from an Air Materiel command consultant persuaded C-W to take a chance and specify it in the engine's design. The J67 could take over 100 tons next year, if available.

• The report, printed elsewhere, that the Lockheed XF-104 cannot be counted on as a lightweight fighter because it weighs 18,000 pounds is not correct. Actually, the XF-104 weights are quite close to the Douglas El Segundo A4D, currently the accepted yardstick of measurement for lightweight aircraft, putting it strictly in the lightweight class, with or without external tanks. Latter, including fuel weight, can mean a difference of 3000 pounds and up in any lightweight job.

• Deliveries on the Helio Courier, being built jointly by Helio Aircraft Corp. of Boston and Fleet Manufacturing of Fort Erie, Ontario, Canada, have begun after a couple years of delays. Plane cruises at 157 miles per hour and features controllable low speed of 35 mph.

• Hawker Hunter deliveries to the RAF have been resumed after being delayed for dive brake modification. Danish Air Force has placed an $8.5 million order for this fighter with delivery to be completed within two years. Swedish Air Force is also planning to order the Hunter.

• Javelin Aircraft's single-axis autopilot for spiral stability in clean light planes is making some progress. The Wichita, Kansas, company has received a contract from Cessna and another from the U. S. Army Signal Corps Laboratories at Fort Monmouth, the latter for developing an installation of the unit for the Army's L-19 observation planes.

• There is still no firm date for the start of the de Havilland Heron's long-delayed U. S. demonstration tour. U. S. certification of the four-engine transport may be complicated by lack of feathering propellers.

• Douglas Aircraft Company has reportedly submitted several optional proposals for lowering the noise level in the cabin of the DC-7. American is to choose which method, if any, it wants to buy. AA has had more trouble than other operators because of interior arrangement and specific choice of forward cabin furnishings in their DC-7's.

• Production of one pound of titanium "sponge" (crude metal) takes approximately 20 kilowatt-hours of electric power. Cost of the power amounts to relatively small part of the cost of the metal: 7¢ to 8¢ per pound, out of total cost of $5, in the case of the Bureau of Mines plant.

• New executive aircraft autopilot using subminiature tubes and magnetic amplifiers will be marketed by Bendix Eclipse Pioneer Div. in 1955. Target weight is 40 pounds or under and cost $3500 without flight path control. Breadboard version will fly in several months.

• Industry demands for allocation of wind tunnel time continue at a high level. Rates for one non-government facility run as much as $700 per hour and utilization as high as 300 hours a month excluding set-up time.

• Modification of a Douglas DC-3 to permit 26,900 pounds gross weight (up 1700 pounds) has been completed by AiResearch Aviation Service Co., Los Angeles, Calif. First plane to be so modified, including switch to P&W R-1830-94 engines rated at 1350 horsepower for take-off, belongs to the National Cash Register Co., Dayton. Also involved is use of rudder and aileron geared trim tabs.

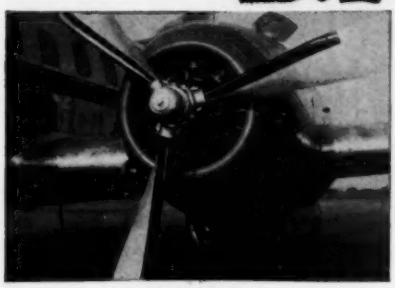
• Reports are that the new target drone competition underway for the U. S. Air Force (not to be confused with the supersonic drone competition won recently by Radioplane Co.) is for one of a "decoy" nature, flown to throw the enemy off track in combat missions.

• Big stumbling block in quality of present titanium production is the wide and serious variations that may crop up within a given shipment of finished metal. Part of the trouble is the batch method of production. Development of a continuous production system is being pushed in several quarters.





RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER



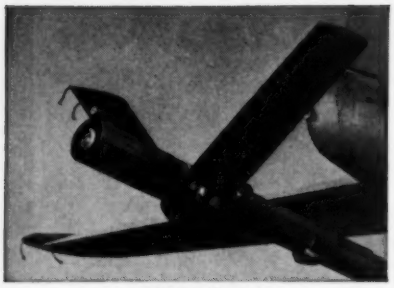
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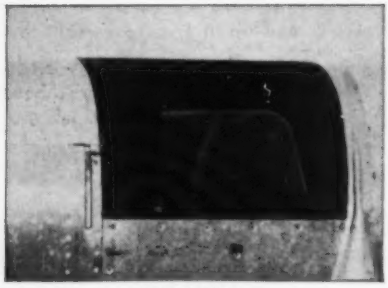
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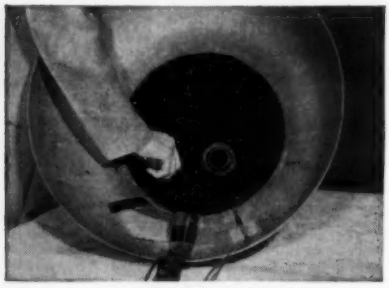
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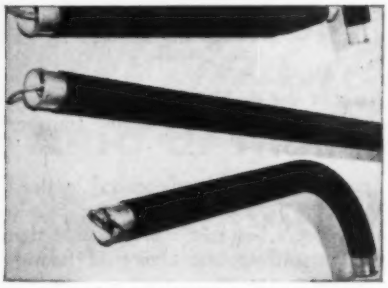
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How to keep planes from coming down with the cold

B. F. Goodrich electrically heated rubber supplies complete protection against ice and cold—even when the size and shape of the part may make it seem impossible. That's because B. F. Goodrich engineers can design heated rubber to fit skin-tight around the trickiest curves and corners.

A core of electric resistance wires sandwiched in the rubber supplies heat two ways: (1) either in cycles to loosen ice so the airstream can carry it away, or (2) constantly, to keep ice from forming in the first place.

Shown are nine of the many B. F. Goodrich heated rubber applications:

Heated rubber keeps leading edges ice-free. On propellers, it prevents ice from reducing flying speed; on stabilizers, it assures safe control; on masts, it eliminates chance of snapping; on ruddevators, it permits accurate control of Flying Boom for in-flight refueling.

Heated rubber keeps ice from choking vital air intakes. On air scoops, jet engine intakes and diffusion cowls, it insures plentiful air supply.

Heated rubber keeps parts operating at top efficiency. On oil and water lines, hydraulic accumulators, it provides correct operating temperatures.

B. F. Goodrich electrically heated rubber can be made as thin as .040" for protected locations, and .060" for external use. It simplifies design, saves weight, can be cemented right onto the part. It's another exclusive development of B. F. Goodrich engineering and research for aviation. Other B. F. Goodrich aviation products: tires, wheels, brakes; De-Icers; Avtrim; inflatable seals; fuel cells; Rivnuts; accessories. Write: *The B. F. Goodrich Co., Aeronautical Sales, Akron, Ohio.*

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ESTABLISHED JUNE 1, 1937

World's Largest Aviation Publishers
American Aviation

VOL. 18, NO. 4

Lewis Spurs Industry Toward Mach 3 Goal

- **AF official's month-long tour gives "shot in arm" to aircraft production and research.**
- **Discussions believed to have included nuclear research and M-Day planning.**
- **Aircraft and engine manufacturers should now know what to expect in months ahead.**

By Robert M. Loebelson

THE TOP AIR FORCE civilian responsible for the development, production, and purchase of new aircraft returned to his Pentagon desk last week after an extensive tour of the U. S. aviation industry—a tour in which industry's top men found out what to expect in the months ahead.

As Roger Lewis, Assistant Secretary of the Air Force for Materiel, reported back to his office on the fourth floor of the five-sided building across the Potomac, he could look back on his visit to more than 25 aircraft, engine, and parts plants with the fervent hope that America's plane builders would step up their efforts to widen the gap between U. S. and Russian air power.

Lewis' trip was more than just an ordinary fact-finding junket around the country. His party of military brass included Gen. Edwin W. Rawlings, head of the Air Materiel Command; Lt. Gen. Thomas S. Power, commander of the Air Research and Development Command; Lt. Gen. Bryant L. Boatner, Deputy Chief of Staff-Materiel; Lt. Gen. Donald L. Putt, Deputy Chief of Staff-Development; and Maj. Gen. Clarence S. Irvine, AMC's deputy commander for production.

These men, all of them charged with the responsibility of seeing to it that the U. S. Air Force continues to maintain its qualitative lead over the Soviet air arm, had obviously scheduled their visit because of what the Central Intelligence Agency had been discovering about the Russians, i.e., that the Kremlin not only has the atomic and hydrogen bombs but also is building the aircraft capable of reaching the U. S. to drop them.

Donald A. Quarles, Assistant Defense Secretary for Research and Development, had made the situation clear during the mid-June conference of defense leaders in Quantico, Va., when he said flatly, "Our technical position vis-a-vis the Soviets is less than it was a year ago." Quarles at the time was evidently expressing the Defense Department's concern over the medium- and long-range jet bombers which the Russians had displayed in flight over Moscow the previous month.

During his visit to the principal aircraft plants, Lewis was trying to discover three things basically:

- What factors, if any, the manufacturers might be encountering which would delay current production.
- Whether the producers feel that they are getting all the help the Air Force can give them to meet those schedules.
- What kind of aid would be required if the USAF should now decide it wants to move into the Mach 2 and Mach 3 field.

Now that supersonic (Mach 1 plus) aircraft are being delivered in the form of North American F-100's and Convair F-102's, and fighters and bombers in a slightly higher speed range (McDonnell F-101, Republic F-105, Convair B-58) are already on order for future delivery, it was inevitable that both the AF and the industry switch their thinking to planes beyond those which could be expected in the normal course of events.

In other words, it is logical that power plants now under development with thrusts of 15,000 pounds and over (Wright's uprated J67, Pratt & Whitney's J75, General Electric's J79) will make Mach 1.5 to Mach 2 feasible before 1958-1960. But it is equally logical that the Russians will have such engines in being at about the same time. (As a matter of fact, some U. S. analysts who have calculated the diameter of the jet intakes on the existing Soviet intercontinental bomber feel the engines may deliver as much as 15,000 pounds of thrust.)

Thus, when Lewis and his aides were going around soliciting industry views on what it would take to accelerate the development of Mach 2-Mach 3 aircraft, they were merely trying to find out what it would take to increase America's air power lead. Whether they will



RAWLINGS, POWER, BOATNER, PUTT, AND IRVINE
A high-powered team takes steps to protect a qualitative lead.

decide that the money and technological effort required is worthwhile cannot be predicted at present, but there seems little doubt that the AF's research and development effort on new engines and the materials capable of withstanding the intense temperature encountered in hypersonic flight will be intensified during the coming year.

The Assistant Air Force Secretary's visit reportedly also resulted in the announcement of a new policy involving procurement when and if Mobilization Day comes. Aircraft companies are said to have been told by Lewis' group that while the USAF now handles procurement of certain parts and assumes all responsibility for their quality, prime contractors will be assigned this job if war breaks out and it will be up to them to see that the products purchased meet performance requirements.

Directly tied in with the Air Force's desire for Mach 2-plus vehicles are two related projects: atomic energy and guided missiles. The presence in the Lewis party of Trevor Gardner, special assistant to Air Secretary Harold Talbott on research and development matters, may have been quite normal in view of the caliber of the group, but Gardner has been assigned the responsibility for guided missile coordination in the USAF and it may also be significant that the tour included strictly missile and electronic producers as well as aircraft and engine firms.

It may well be true that the month-long tour also foreshadowed a new emphasis on missiles (or pilotless aircraft as the Air Force prefers to call them) and the electronics systems to guide them to their targets. For while it is true that a man-carrying vehicle can be made to attain Mach 2.5 (the Bell X-1A piloted by Maj. Charles Yeager reached that speed for a brief period last December), the thermal barrier and the problems involved in keeping the pilot comfortable at those speeds may dictate the use of missiles almost exclusively.

On the other hand, it is generally conceded that no guidance system is yet as infallible as a human pilot in finding the target. Consequently, efforts to improve the electronic devices to a point where they cannot be diverted from the target by electronic countermeasures are an absolute must before a high-speed missile is evolved.

As for atomic energy (and it must be noted that a nuclear engine is now considered one of the principal hopes of reaching high-speed flight in a hurry), it is highly unlikely that Lewis and his colleagues failed to discuss nuclear-powered aircraft when they visited the principal contractors in this field (Pratt & Whitney, Boeing, General Electric-Evendale, Convair, Lockheed, North American, and Martin). And it is highly probable that if the Air Force decides it wants Mach 2 airplanes, it will step up its atomic research.

In any case, the aircraft industry is generally in agreement that the month-long tour will help give present production and future research a much-needed "shot in the arm." And the 30 days preceding the Fourth of July, 1954, may prove to be the period in which the USAF laid the groundwork for hypersonic flight.

• • •

Checkpoints on the Lewis Tour

The Glenn L. Martin Co., Baltimore
Radio Corp. of America, Camden, N. J.
Republic Aviation Corp., Farmingdale, L. I., N. Y.
Sperry Gyroscope Co., Great Neck, L. I., N. Y.
Bell Telephone Laboratories, New York, N. Y.
Curtiss-Wright Corp., Wood-Ridge, N. J.
United Aircraft Corp., East Hartford, Conn.
General Electric Co., Syracuse, N. Y.
Bell Aircraft Corp., Buffalo, N. Y.
AC Spark Plug Division, Milwaukee
General Electric Co., Evendale, Ohio
Allison Division, Indianapolis
McDonnell Aircraft Corp., St. Louis
Emerson Electric Co., St. Louis
Bendix Aviation Corp., South Bend, Ind.
Boeing Airplane Co., Seattle
AiResearch Manufacturing Co., Los Angeles
Hughes Aircraft Co., Culver City, Calif.
Northrop Aircraft, Inc., Hawthorne, Calif.
North American Aviation, Los Angeles
Gilfillan Bros. Los Angeles
Douglas Aircraft Co., Santa Monica, Calif.
Rand Corp., Santa Monica
Lockheed Aircraft Corp., Burbank, Calif.
Aerojet-General Corp., Azusa, Calif.
Convair Division of General Dynamic Corp., San Diego

MAN ON THE COVER

Roger Lewis, 42, Assistant Secretary of the Air Force, has been described by some industry observers as one of the most successful Eisenhower appointees. His record in the post, since he was sworn in on April 3, 1953, has reflected a knowledge of the industry in which he has spent his entire working life.

Immediately after graduation from Stanford University with a B.A. degree in 1934 he joined Lockheed Aircraft Corp., starting in the sheet metal shop. During World War II he was director of material, in charge of purchasing, outside production, and subcontracting. He was assistant general sales manager of Lockheed when he left the firm in 1947 to become sales manager of Canadair Ltd. in Montreal. He later became vice president, traveling widely and dealing with foreign governments and airlines.

In May, 1950, he moved to the Curtiss-Wright Corp. to become director of all sales activities. He was a vice president, a member of the corporation staff, and chairman of the new products committee. He also directed Wright Aeronautical's subcontracting after the outbreak of war in Korea. He is a member of the Royal Aero Club, the Wings Club, and the Institute of Aeronautical Sciences.

Aviation Pulling Away In Employment Race

The aircraft industry pulled further out in front of automobile manufacturing as the nation's largest employer in April. Figures released by the Bureau of Labor Statistics set employment figures for the two industries at 816,600 and 768,500, respectively, a difference of 48,100.

March employment figures showed the two industries separated by a smaller gap: 823,100 and 785,300, respectively, a difference of 37,800.

Figures for both reflect a new system of "benchmarks" now being used by the bureau. In a comparison of the old and new systems, the Bureau points out that in February of this year the aircraft industry was originally credited with 762,600 workers. Using the new system of measuring this figure would increase to 823,700.

Breakdown of the aircraft figure for April includes 498,900 workers in airframe production, 174,200 in engines and parts, 13,800 in propellers and parts, and 129,700 in other parts and equipment.

Cost-of-Living Pension Plan Set Up by NAL

A pension plan designed to keep pace with changes in the cost of living before and after a worker retires has been set up by National Airlines. The payments under the plan are adjusted in accordance with the Consumers Price Index published by the Bureau of Labor Statistics. If the current cost of living as indicated by the Index rises above 105% of the pensioner's base figure, payments are increased; if it falls below 90% of the base, payments are cut.

The base figure itself is determined

at the time the worker retires, at which time cost-of-living changes that took place while he was a member of the pension plan are taken into account.

The program, which was devised by the National City Bank of New York and Alexander & Alexander, Inc., of New York, consulting actuaries, was made possible by recent changes in Bureau of Internal Revenue rulings. Under these rulings such plans became eligible for the first time for exemption from income taxes.

ODM Authorizes Rise In Aluminum Capacity

Office of Defense Mobilization early this month authorized a 27% increase in aluminum forging capacity to meet the growing needs of the aviation industry. The new ODM "interim" expansion goal sets a forging capacity of 504,150,000 pounds by January 1, 1956, marking an increase of 108,250,000 pounds over that in effect on January 1, 1954.

Government assistance will be limited to rapid (five-year) tax write-off certificates for equipment and facilities meeting these criteria:

Medium forging presses—including hydraulic presses of 1500-3000 tons; hammers of 6000-18,000 pounds; mechanical presses of 1600-6000 tons; impact extrusion presses of 1000 tons or more and with a minimum stroke of 20″. Increase—13.9 million pounds capacity.

Upsetter forging presses—10″ upsetters. Increase—17.55 million pounds.

Large forging presses—includes hydraulic presses over 3000 tons, hammers over 18,000 pounds, and mechanical presses over 6000 tons. Increase —76.8 million pounds.

Heat treating facilities—capable of processing 100% of finished capacity.

FCC Approves Segment Of Arinc Network

Following more than a year's deliberation, the Federal Communications Commission has approved a "pilot" application of Aeronautical Radio, Inc., under which the American Telephone & Telegraph Co. will re-equip and maintain an Arinc-licensed ground-air communications network over United Air Lines' domestic system.

FCC approval was first sought early in 1953 and had been once rejected by the Commission because it felt that Arinc, without ownership of the equipment or premises, would not have sufficient interest to exercise its responsibilities as licensee.



Douglas RB-66, USAF version of the Navy's A3D Skywarrior, has just made its first flight. The Air Force plane uses two Allison J71 turbojets delivering more than 9500 pounds of thrust each; the Navy craft is powered by two Pratt & Whitney J57's rated at 10,000 pounds each. Douglas will build several versions.

Equipment for the program, involving seventy-five VHF transmitter-receiver units was purchased by Western Electric from Wilcox Electric Co. more than a year ago (AMERICAN AVIATION, April 13, 1953).

Current approval covers only the UAL Chicago-Cleveland route segment facilities at Castilia and West Unity, O. and La Porte, Ind. Additional applications to cover the coast-to-coast network will presumably be made to FCC when final contract details between Arinc and AT&T have been settled.

One major issue still to be resolved between the two parties is understood to be a requirement for complete integration and full operational flexibility in the interconnection or other Arinc facilities with the AT&T plant.



A USAF T-34 Mentor is caught in an unusual attitude, demonstrating that the AF/Navy trainer has no aerobatic restrictions. Photo was taken by Beech Aircraft Corp. photographer in parallel T-34.

Organization to Combat Noise Problem Proposed

The possibility of combatting the aircraft noise problem through a nationwide organization patterned after the National Air Transport Coordinating Committee now active in the New York area was discussed by top aviation and government officials meeting in Washington, D. C. recently.

Consensus of those attending appeared to be that the noise problem is one that is certain to become worse before it gets better, and one that must be met with an aggressive program of community relations and public relations rather than by a defensive approach. It was felt that this might best be accomplished by an industry-financed group similar to NATCC operating at the local level but under national direction.

The Washington session was called primarily to discuss a railroad-inspired campaign aimed at closing or forcing relocation of Louisville's Standiford Field. However, the trend of the meeting was more inclined toward treatment of the problem, not at Louisville alone, but at all other airports throughout the country where it may exist.

House Cuts $75 Million In British Air Funds

The House of Representatives on June 30 cut out $75 million in foreign aid funds which were destined to help finance the British aircraft program. Vote to deny the $75 million was 85 to 60 on an amendment from Representative Alvin M. Bentley (R-Mich.) which, however, provided re-authorization for $85 million of unexpended and unobligated fiscal 1954 funds for the same purpose. The 1954 funds will be used in connection with the Hunter, Swift, Canberra, and Valiant construction programs.

Rep. Bentley successfully argued that to authorize the $75 million for fiscal 1955 would be to vote for sub-

sidization of the British civil aircraft industry. He said that it would not only be economic aid but "direct budgetary support for the United Kingdom."

New C-46 Modification Deadlines Set By CAB

The Civil Aeronautics Board, in adopting recent rules to govern future operation of C-46 airplanes in passenger operations, has set these new deadlines affecting aircraft modification and performance:

By November 1, 1954—operators must make a showing to the CAA Administrator that "genuine arrangements for aircraft modification have been initiated" in order to continue operation under former rules (Special Regulation No. 391).

By October 1, 1955—completion of modifications to comply with CAR 4b, except flight requirements of 4b.100 through 4b.190. This covers improved nacelle fire protection and engine cooling.

By April 1, 1956—compliance with T-category performance, except that, for the first time, CAB will accept automatic indication of propeller feathering in lieu of the requirement of meeting 1st and 2nd segment climb rules with the propeller of the inoperative engine windmilling.

On and after April 1, 1956—compliance with performance operating limitations applicable to T-category aircraft, except that a "drift-down" procedure will be allowed as a substitute for literal compliance with en route climb requirements.

Defense Sets Up Joint Air Committee

A Joint Aircraft Committee for the Defense Department has been set up, responsible to T. P. Pike, assistant Secretary of Defense for Supply and Logistics. A similar committee has previously existed as part of the operation of the now-defunct Munitions Board.

The group will be composed of a flag or general officer from each of the military services, plus a representative from Pike's office as chairman.

The group will coordinate the aircraft and engine production schedule both for current and for wartime programs. It will also make recommendations on procedures for determining spare parts requirements, maintain liaison with the Aircraft Production Resources Agency, coordinate industrial mobilization measures relating to aircraft, and coordinate allocation of industrial capacity in plants producing jointly for the services.

Periodic and annual reports will be submitted by the committee, with the latter due each August 1.

Palley Joins TEMCO As Engineering Head



I. Nevin Palley, formerly chief of missile design for Chance Vought Aircraft, Inc., has joined TEMCO Aircraft Corp., Dallas, Tex., in the newly created post of vice president—engineering.

Robert McCulloch, TEMCO president, announced that Palley will have complete responsibility for all TEMCO engineering and electronic activities, with H. G. Erickson, chief engineer, and G. B. Spaulding, superintendent of electronics, reporting to him.

Palley recently was appointed to the Technical Advisory Panel on Aeronautics for the assistant secretary of defense for research and development. He is largely credited with the successful direction of the Regulus guided missile program.

Additional Requirements Loom For Viscount

Study of the Vickers Viscount certification is progressing according to schedule and the results are expected to be forwarded to the Air Registration Board late this month, according to W. H. Weeks, who heads the CAA aircraft engineering division.

Weeks did not elaborate on what specific requests would be made over and above British requirements, but did indicate that some such requests would probably be made. He said they may involve preparation of added data or further analysis of currently available information, more flight testing, or even actual aircraft modification.

The CAA study is being confined to the model 724 Viscount being ordered by Trans-Canada Air Lines. This is essentially the same as the model 744 being ordered by Capital Airlines to which the CAA acceptance will apply.

Mediation Hoped For In Pilot Dispute

The Air Line Pilots Association has set July 15 (11:59 p. m.) as the date for a system-wide strike against American Airlines in protest against flying more than eight hours on Douglas DC-7 transcontinental non-stop schedules.

An ALPA petition for a stay of the CAB's waiver of the eight-hour rule, filed in the Second Circuit Court of Appeals, New York City, was refused by Judge John Harlan.

At deadline, National Mediation Board was expected to ask ALPA to delay the walkout pending NMB's effort to mediate the dispute.





FAR APART geographically but rather close structurally are these two experimental one-man helicopters being developed for the Navy. Left: The first U.S. rocket-powered helicopter, the RH-1, hovers in flight as it undergoes flight tests at Los Alamitos (Calif.) Naval Air Station. Labeled project Pinwheel, it has been under development for nearly four years by the Rotor-Craft Corp., Glendale, Calif. Right: The Kellett KH-15, a rocket-powered craft designed for research into gyro-stabilizing controls for helicopters, flies at Camden, N. J. The KH-15 took to the air on its initial flight after only eight minutes of tethered flight. Nicknamed "Stable Mabel," the craft has an automatic control system to hold ship steady.

INVESTMENT BANKERS' 'BLUEPRINT' CALLS FOR . . .

New Look at Subsidies and the CAB

THE EMPHASIS on airline subsidies is "out of all proportion to the true significance of the subsidy payments," the Investment Bankers Association of America claimed this month in a published report designed to restore investors' confidence in American civil aviation.

Though labeled "Local Service Air Transportation and Metropolitan Helicopter Services," the report could be considered the financial world's blueprint for future development of new air transport services in this country. It was prepared by the IBA's Aviation Securities Committee.

"There are many, including persons in important official positions," the group concluded, "who think that the federal funds paid to carriers to enable them to perform the services which they are required to render in the public interest, are paid 'for the benefit of the carriers.' The facts indicate that the carriers are paid barely enough to survive."

The report suggests a major rearrangement of the government's civil aviation departments and agencies giving aviation a "voice at the Cabinet level." Here's how such changes would be accomplished:

"Re-creation of the Civil Aeronautics Authority . . . which should have in it all the federal agencies having jurisdiction over civil aviation as their primary functions. This would include the Civil Aeronautics Board, the Civil Aeronautics Administration (possibly re-named the Civil Air Technical Administration) . . . and a new office to be called the 'Office of the Civil Air Contracts Administrator.'

Voice at Cabinet level

"We suggest that the Secretary of Commerce be Chairman of the . . . Authority, in order that civil aviation will have a voice at the Cabinet level. But we do not suggest that he have any administrative control over the CAB, which should maintain its independent judicial status."

The IBA said its most important recommendation is "that concerning the creation of the Office of Civil Air Contracts Administrator. To this office we would transfer CAB's rate-making section, and also the Board's responsibilities for direct financial payments to carriers (now called mail subsidies).

"We feel that many of the problems now plaguing air transportation, stem from the fact that CAB is overburdened and has always had great difficulty in keeping up with the many matters it is called on to decide, and we believe that the Board could be much more effective in developing a sound air transportation system for the United States if it were relieved of some of its other responsibilities."

In cases where a carrier's income is insufficient to enable the carrier to render services required in the public interest "we would have the carrier apply to the Civil Air Contracts Administrator—not to the CAB—for financial assistance.

"We would have the required funds paid to the carrier under the authority of this official, and we would have him primarily responsible for presenting to the congressional appropriations committees the need for appropriations to cover these payments."

The Contracts Administrator "definitely would not be a CAB Member" but "obviously the position would be an important one which should rank equally with the position of CAB Chairman."

Investor confidence is low

IBA suggests that the basic provisions of the present Act could be maintained, under its proposal, although specific amendments would be necessary to effect the proposed reorganization of agencies and departments.

The group said it believes "investor confidence in air transportation is at one of the lowest points that it has been since the Civil Aeronautics Act was passed in 1938, and we believe that prompt action by the Administration and the Congress is needed to restore investors' confidence in this essential industry."

Meanwhile, recommendations relating to "Regulatory Procedure" were advanced, including the following:

- Consideration should be given to other principles in determining government compensation to airlines besides the present "need" principle.
- A single type of rate including allowance for profit and taxes be established for all carriers receiving subsidy. Excessive earnings, if any, could be recaptured later by a renegotiation procedure.
- Incentive contracts should be used incorporating the principle that the contractor and the government share in savings effected by the contractor as compared with estimated costs, and the contractor suffer some penalty for inability to control costs. Present sliding-scale formulas not believed to contain adequate incentive features.
- Present CAB policy limiting salaries of local service and helicopter executives for rate-making purposes, should be repealed with such salaries decided by the carrier's directors "on the basis of normal business judgment."
- The "settled policy" under which CAB does not recognize in a carrier's investment base, for rate-making purposes, capital in excess of three months cash requirements, is inconsistent with the Board's stated philosophy that the carriers should be soundly financed with equity capital.

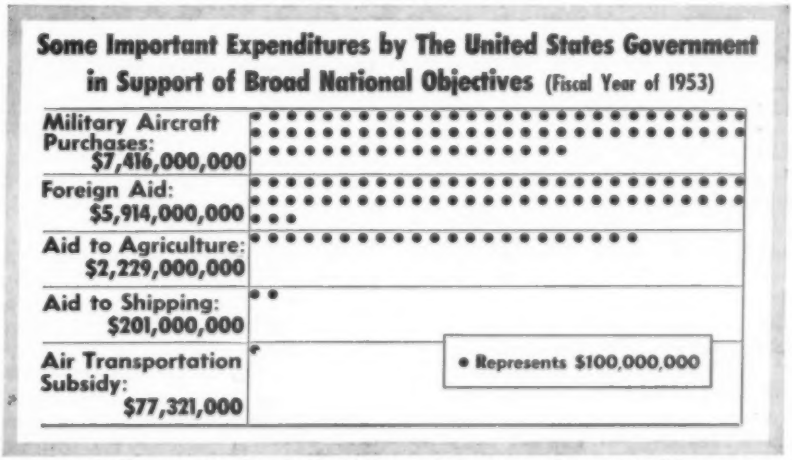


CHART above is taken from the report and points up the wide differential between air transportation subsidy and some other important programs

• A return on investment of "at least 15% after taxes be allowed in the first instance, with provision for renegotiation to a somewhat lower figure, but not below 10%; and that funds expended for the development of new equipment for the benefit of the industry as a whole, be exempted from renegotiation.

In addition, the report contains findings under the heading of "Miscellaneous," as follows:

• CAB, local service carriers, and trade associations have been deficient in not publishing accurate comparative financial statistics for the industry.

• When mergers in the local service field appear desirable, the Board should rely more on financial incentives than on legal procedures to bring these mergers about wherever possible. "Regulatory agencies often tend to think in terms of show cause orders and lengthy hearings . . . and frequently overlook the fact that incentives may be more effective and less costly in the long run."

• Where termination of an operation is indicated, a more liberal approach to termination compensation than has prevailed would also be effective.

• Better cooperation between the military and civil aviation agencies of our government is desirable, particularly in the development of air transportation equipment where there are many common problems which could be solved more rapidly and at less expense to the taxpayer by joint action. Specific reference was made to such joint programs with respect to development of helicopters.

Less favorable treatment

Significant also are the IBA's findings and observations on the subsidy problem as such:

"Our studies have led us to the conclusion that misconceptions regarding the facts relating to government support of our air transportation system are widespread. We believe that this is a very serious matter because, without public understanding and proper legislative support, the companies engaged in rendering the services for which they were certificated, find themselves under constant pressure, which undoubtedly has a detrimental effect on their ability to render efficient service.

"There is a strong stigma attached to the word 'subsidy.' It is our opinion that the emphasis which has been placed on air transport subsidies by government officials, some legislators and competing forms of transportation, is out of all proportion to the true significance of the subsidy payments, and that this has resulted in air transportation being accorded less favorable economic treatment than other government regulated industries.

"We believe it unrealistic to expect that any substantial reduction of subsidies can or should be accomplished by reduction of services to the public.

". . . we have found no basis for believing that the trunk lines could take over and operate the entire local service system as it now exists and effect any substantial saving in the cost of rendering this service."

"In recent years . . . the interpretation of the Civil Aeronautics Act appears to have taken on an increasingly restrictive character, to such a degree that, in our opinion, the carriers operating services requiring government financial support are not receiving the income necessary to enable them to 'maintain and continue the development of air transportation to the extent and of the character and quality required for the commerce of the United States, the postal service, and the national defense.'"

Responsible for the report were these members of the special IBA committee: Chairman William Barclay Harding, of Smith, Barney & Co.; Henry W. Cohu, Cohu & Co.; Richard W. Courts, Courts & Co.; Hugh Knowlton, Kuhn, Loeb & Co.; Salim L. Lewis, Bear, Stearns & Co.; Donald W. McDonnell, Blyth & Co.; Cortelyou L. Simonson, Morgan Stanley & Co.; David L. Skinner, Harriman, Ripley & Co.; and Murray Ward, E. F. Hutton & Co. Committee headquarters are at 14 Wall St., New York.

Summing up, they said: "We believe that investor confidence in those local service and helicopter air transportation companies that are rendering important public services, could be rapidly restored if the above recommendations were followed, and we believe that this could be accomplished without an increase in the overall cost of air transportation to the U. S. taxpayer."

• • •

Light Plane Firms Sell Manufacturing Rights

Light planes were in the news this month as two manufacturers sold rights to personal-type planes and another reorganized and refinanced its operation and revived production:

• Aeronca Corp. sold engineering, tooling, and inventory for the two-place Champion to Flyers Service, Inc. at St. Paul, Minn. Champion Aircraft Corp. has been formed by FSI to manufacture the Champion starting in September. Plane is expected to sell for about $3500.

• Temco Aircraft Corp. sold manufacturing rights, parts inventory, and tooling for the Swift to Vest Aircraft Co., Sky Ranch Airport, Denver. Plane is not in production but Vest plans on handling replacement parts.

• Following complete reorganization and refinancing of the company, Mooney Aircraft, Inc., Kerrville, Tex., reopened production facilities at Louis Schreiner Field. Hal F. Rachal replaces former president Charles G. Yankey, who died early this year. Production on the single-place Model 18 is being resumed immediately and efforts toward certification of the four-place Model 20 accelerated.

Other business news:

Ryan Aeronautical Co., San Diego, received a $3.5 million USAF contract for Q-2 Firebee pilotless aircraft powered by Continental J69 Marbore turbojets.

Lear International, Inc., with headquarters at 345 Madison Ave., N. Y., was set up by Lear Inc. to handle export of virtually all Lear Products. Headed by Harvey Dwight as board chairman, firm absorbs Lear Int. Export Corp.

Kaiser Metal Products, Inc., Bristol, Pa., has received substantial additional contracts from Republic Aviation Corp. for F-84F aft fuselage sections, extending their Republic production well into 1955. Kaiser also produces Martin B-57A wing sections.

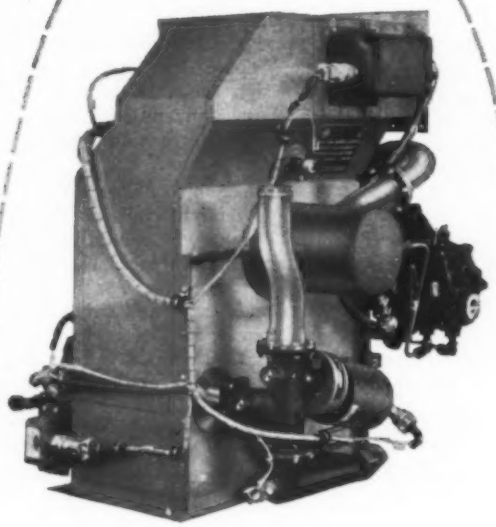
Wallace Aviation Corp., headed by Myron B. Gordon, has been formed at Wallingford, Conn., by R. Wallace & Sons Mfg. Co. to produce compressor blades and blade components. Backlog is over $1 million. Other stockholders include Laurance Rockefeller and Reaction Motors, Inc.

Horizons Titanium Corp., Princeton, N. J., will get up to $564,300 from General Services Administration for erection and operation of a pilot plant to study their process of making ductile titanium metal. New plant, tentatively set for Stamford, Conn., will be run for one year test period.

Ryan Aeronautical Co. has received about $2 million in new orders on five contracts including afterburners for Wright and Westinghouse engines, exhaust manifolds for the Convair 340, and ducting system components for Douglas Aircraft Co.

The American Rocket Co., Box 1112, Wyandotte, Mich., has been formed for research, development, and testing of rocket and jet engine devices. President is Alfred J. Zaehringer.

Bristol Aeroplane Co. of Canada is negotiating to buy MacDonald Bros. Aircraft Ltd. of Winnepeg "to balance our Canadian engine plant facilities with airframe production and overhaul facilities. MacDonald employs 1100, produces Edo floats and components for Avro, de Havilland, Rolls-Royce, and Beech. Reported price: $2.5 million.



The hazard presented by explosive vapors in fuel cells and surrounding areas is eliminated by this positive, passive defense method for safety in flight—a product of Surface Combustion's more than 37 years experience in combustion engineering and atmosphere preparation.

The purge gas generator pictured here—for a new jet aircraft—is one of several models that have been undergoing steady development since 1949, based on the proven theory that combustion is the most economical and efficient method of supplying large quantities of inert gas for aircraft protection.

The Janitrol unit weighs less than 90 pounds—occupies only 3 cubic feet—produces more than 10 lbs./min. of inert gas for complete, passive, explosion and fire defense from "natural" causes as well as enemy action. The pilot need flip only one switch to set the generator into operation, from there on operation is automatic and continuous. Generated gas is dumped overboard until the proper degree of "inertness" is established, then the gas is supplied to fuel cells and surrounding area on a demand basis—

Now

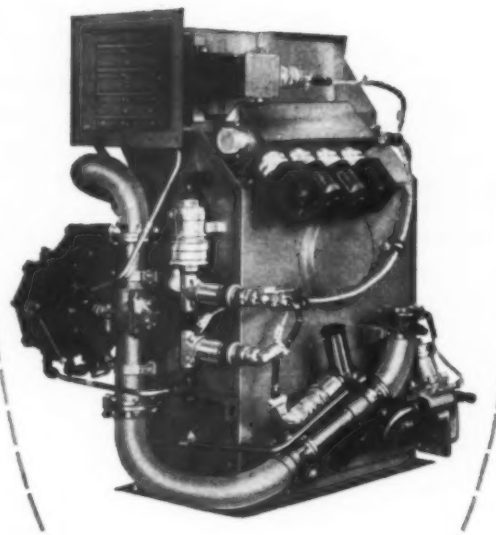
it can be shown

Janitrol Purge Gas Generator



a positive contribution

to safety in flight



14" x 16" x 24"

determined by pressure—continuously, until the generator is shut down by the pilot. Even after shutdown, there is an automatic "purging" action within the generator to assure that all fuel is exhausted from the generator system, and that all volatile vapors are cleaned out before operation stops automatically.

The versatility of Janitrol's new "dimple-plate" heat exchanger principle permits construction of generators in virtually any configuration to meet installation requirements on planned, as well as existing aircraft.

Inquiries relative to civil aviation applications are invited.

37 years experience in combustion engineering

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TITANIUM...Industry Will Use All It Can Get

Senate subcommittee discovers that the 'wonder metal' holds high promise for aviation use.

By WALTER A. KILRAIN

ONE OF THE MOST comprehensive looks yet taken at the advantages, disadvantages, and production dilemmas of the "wonder metal," titanium, has been released to the industry with the publication of testimony before a Senate subcommittee.

The assignment of exploring the production and uses of the metal was given to Senator George Malone by the Committee on Interior and Insular Affairs. The Nevada Republican held subcommittee hearings at a production center in his home state, called plane builders and other users of the metal to hearings in Los Angeles, and wound up back in Washington listening to top officials of the government and the armed services. Last week his 800-page report was scheduled to go to committee.

Among the findings:

- The market is immense and production is minute.
- Production in this country reached larger-than-laboratory proportions in 1951, when almost 500 tons was produced. (See box below.)
- Production this year is expected to reach a figure 10 times as high.
- Contracts already in existence or under negotiation provide for production of over 32,000 tons per year when all producers are up to rated capacity.
- The market is difficult to describe in precise terms, since manufacturers are refraining from including titanium in new designs pending some assurance that the metal will be available in the required quantities, but estimates (see box page 25) indicate that demand will exceed supply for years to come. One conservative estimate by the Air Materiel Command's Brigadier General Metzger predicted immediate use of 150,000 tons per year if manufacturers could plan on dependable supply.
- A policy of stockpiling titanium has been adopted by the Office of Defense Mobilization, both to accumulate a quantity of the metal for future use and to even out any discrepancies between supply and demand.

The stockpiling policy, as described by the ODM Director Arthur Flemming is as follows: "We will use Defense Production Act funds to acquire the material. We will hold it. In the meantime we will set an interim stockpile objective. Then we will just hold it and decide at a later time whether it should actually go into the stockpile . . . or whether it should actually be allocated for civilian and military use.

"The mere fact that in the month of June or the month of May the military requirement plus the civilian requirement just does not happen to be enough to take care of the current production is certainly no excuse whatever for anybody's saying that we have a surplus."

The silver-grey metal which has provoked such concern is as abundant in nature as it is scarce in industry; only three structural metals are found in greater quantity. The strenuous efforts being made to bring it from ore into airframes are occasioned by the fact that it is stronger than aluminum, 40% lighter than alloy steel, and shows superior strength-weight characteristics between 250° and 800° F. (See chart page 25.)

Titanium's light weight (0.16 pounds/cubic inch) and high strength can mean greater speed and range in military uses, greater payloads in commercial aircraft. J. Lee Atwood, president of North American Aviation Corp., told Malone's subcommittee: "In the case of a high-performance military plane, saving one pound in structure or in fuel or in armament, no matter where we save it, at the design stage, we can save three, five, possibly seven pounds in the final weight of the airplane . . .

"It isn't that we save one pound by substituting three pounds of titanium for four pounds of steel; we save more. We save quite a lot in the size of the airplane we are designing if we do it at the design stage. If we wait until we are all through and then replace stainless steel with titanium, we only save pound for pound."

An example of how weight savings in engines might work out in terms of gross weight was offered by Dimitrius Gerdan, chief engineer for the Allison Division's turbojets. Assuming a 100,000-pound, twin-engine aircraft, in which each of the engines originally weighed 5000 pounds, Gerdan estimated that 20% of the engine weight might be saved by titanium. This saving of 2000 pounds would snowball into a saving of 12,000 pounds in the gross weight of the airplane, after the appropriate economies were made in the rest of the design. These figures do not include any additional savings that might result from the use of titanium in the airframe.

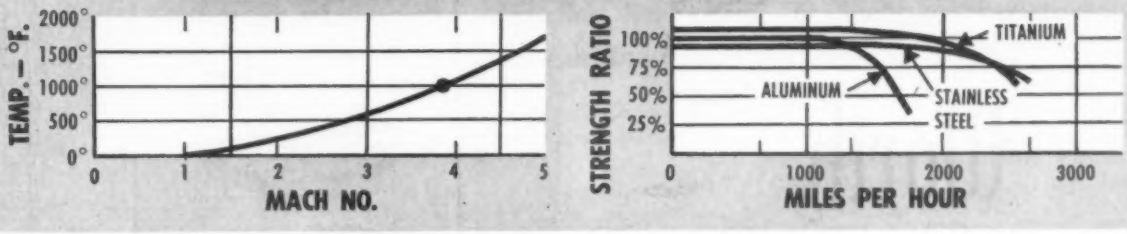
The appeal of such savings in weight has not been lost upon the aircraft manufacturers, even though they have had small opportunity so far to do anything about it. (See chart page 27.) Boeing is using titanium in power packages and engine struts for the B-52 and B-47. Lockheed is using it in a fighter, a cargo plane, a patrol bomber, and is considering it for an experimental fighter.

How Much Titanium Do We Produce?

Number of actual or estimated tons of "sponge" (comparable to pig iron) produced or scheduled by major suppliers on the scene today

Year	Total U.S.	Titanium Metals Corp.	Bureau of Mines	duPont	Cramet (Crane Company)
1951	495	Production at Henderson, Nev., began in Oct. '51	Pilot plant for continuous reactor built 1951 Boulder City, Nev.	356	Private pilot plant built in Chicago
1952	1100	324	5 tons/month	727	.....
1953	2000-3000	2009	133	900	Govt. contract signed
1954	5000	3600 (rated capacity)	160 (rated capacity; operation to be suspended in Sept.	3460 (Govt. production begins July)	Govt. prodn. begins in third quarter
1955	13,400	3600 (rated capacity)	.....	3600 (rated capacity)	2900
1956	?	3600 (rated capacity)	.....	3600 (rated capacity)	6000 (rated capacity)

TEMPERATURE EFFECT ON MATERIALS



North American is currently using titanium as 1% of the structural weight of the F-86, 2% in the F-86H, and 5% in the F-100. The applications are all in "hot spots" near the engines.

According to the Navy, its contractors are using titanium "in practically all experimental and in a number of production airplanes." Republic Aviation proposes to use titanium for ammunition boxes and the aft end of the engine shroud on the F-84F.

In commercial uses, Donald Douglas, president of Douglas Aircraft, reported that his firm has put 528 pounds into the DC-7, thereby saving approximately 200 pounds. Calculating that one pound saved is worth $40, the application of titanium "saved $8000 for the customers." Lockheed is contemplating the use of 420 pounds in the Constellation, and a "good husky portion" in the aft fuselage of an "advanced airliner."

Major reasons for the slow progress titanium production has made to date include the small amount of output available as plant capacity was built up, wide variations in quality of the metal produced, and relatively high cost.

Main producers of the sponge (crude metal) so far have been:

• **Titanium Metals Corp.,** with a plant at Henderson, Nev., now approaching its rated capacity of 3600 tons per year;

• **du Pont,** which has been operating its own pilot plants since 1948 and which is scheduled to begin production under a government contract this month, aiming for capacity production of 3600 tons annually sometime next year;

• **Cramet (the Crane Co.),** which has been operating a pilot plant in Chicago since 1951, and which is due to start government production this fall, with capacity production of 6000 tons per year not due until 1956.

• **The Bureau of Mines** has also

How Much Titanium Do We Need?

The Senate subcommittee investigating titanium discovered that the industry wanted more titanium than it was likely to get. The question of just how much more was not so easily answered. Industry representatives described the market from two points of view: (1) Quantities involved in relatively firm plans for production under present conditions of quantity, quality, and price; (2) Quantities that might be used if cost and availability ceased to be problems.

1. Firm Plans

DOUGLAS:	1954—1% to 3% of airframe wgt.; 27,000 pounds 1957—20%; 200,000 pounds
CONVAIR:	1954—72,000 lbs. 1955—13,000 lbs. firm; 773,000 lbs. expected. 1956—2,000,000 lbs.
LOCKHEED:	1954—62,000 lbs. military use only. 1955—152,000 lbs. military use only.
N. AMER.:	1954—830,000 lbs. 1955—790,000 lbs.
CURTISS-WRIGHT:	1955—3600 tons for J65 and J67 alone. 1956—3500 tons minimum for C-W. 350,000 tons for all engine manufacturers in case of emergency. 1957—6000 tons if peacetime. 72,000 tons for C-W and licensees if emergency. (Improved alloys might increase this 60%)
PRATT & WHITNEY:	1954—120 tons to 568 tons. 1955—2226 tons.
GENERAL ELECTRIC:	1954—1200 tons. 1955—3500 tons.
ALLISON DIV. OF GM:	Anytime—400,000 tons, to produce an assumed goal of 100,000 turbojet engines, plus spare parts.
WESTINGHOUSE:	1954—888 tons.

2. If We Could Get It . . .

Yearly tonnage estimates

2,500 to 17,000 by 1956—Aircraft Research Testing Committee (as quoted by Robert E. Gross, president, Lockheed)
5,900 to 6,000 by 1956 for Pratt & Whitney (Gwinn of P&W)
36,000 for Curtiss-Wright (Hurley of C-W)
100,000 to 105,000 for all uses of all armed services (Metzger of USAF)
108,000 for all engine and propeller manufacturers (Hurley of C-W)
150,000 to 200,000 for all military and civilian aircraft (Richards of Republic Steel)
200,000 in 1956 if one billion lbs. of airframe were to be built (Hitchcock of Boeing)
216,000 in 1957-1958 for all engines and aircraft, no emergency (Hurley-Metzger)
400,000 in 1959-1960 if one billion lbs. of airframe were to be built (Hitchcock of Boeing)
400,000 in 1956 if one billion lbs. of airframe were to be built (incl. engines) (Metzger)
800,000 in 1959-1960 if one billion lbs. of airframe were to be built (incl. engines) (Metzger)
880,000: as large as the stainless steel industry, if prices dropped to $3 per pound (Vandenburgh of Mallory-Sharon)
1,000,000 anytime for all Army uses (tanks, etc.) (Mesick of Watertown Arsenal)

In terms of percentages of weight

5% to 10% of empty weight of bombers
25% to 40% of empty weight of fighters
—Gross of Lockheed
60% to 75% of some contemplated designs
—Atwood of N. American
20% of G-E jet engines (i.e., about 7000 lbs. per engine)
—Stalker of G.E.

Worth Defending



FREEDOM FROM WANT

Freedom from Want can never apply to a dominated people. History records that any economy built at the price of freedom has always resulted in lowered standards of living . . . and Want is still today the brand on helpless millions.

Freedom from Want is the right of all free people — the goal of every democratic nation. Freedom from Want . . . is *worth defending!*

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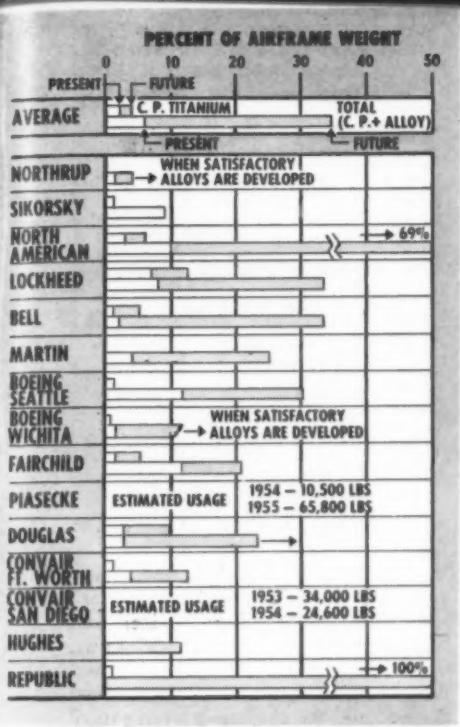
CANADAIR

— AIRCRAFT MANUFACTURERS —

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produced over 200 tons under contract with the General Services Administration since last July. Prior to that, and concurrent with it, it had conducted development and research work at its small pilot plant at Boulder City, Nev. This September it will return to such development work.

Other contracts are under consideration, but it has been estimated that approximately two years is required between the signing of a contract and the start of new production.

Quantity problems have been aggravated by the fact that it is virtually impossible to reclaim titanium scrap at present, due to the nature of the metal. Since variations in quality and the shortcomings in manufacturing techniques that are normal to introduction of a new material are keeping scrap percentages high, the need for a scrap reclaiming method is well up on the industry's list of priorities.

Cost of the ore is currently running two to six cents per pound; sponge, $5 per pound; bar stock, $15 per pound; and sheet, $20, per pound.

As the subcommittee presented its report last week, the Department of Defense was busy conducting a new survey of its mobilization needs, having just submitted to the ODM a new estimate of its titanium requirements through 1958 in case there is no national emergency. Aside from the advantages inherent in the metal, Defense had another spur: the Russians in the last few years have published at least 257 technical articles on the subject. • • •

Reaction Sought On Advanced DC-7's

Douglas has plans for incorporating turboprop power IF it can find engine that fits.

Douglas Aircraft Co. is exploring airline reaction to two advanced DC-7's it has in the mill.

One is a turbocompound DC-7C incorporating major modifications to the present DC-7 to provide for a substantial increase in maximum gross take-off weight and in fuel capacity for longer range international operations. The other is a turboprop DC-7D.

The DC-7D is strictly an engineering projection set up for a possible 1958 delivery date. It contemplates use of a still uncompleted powerplant, the British Rolls-Royce RB109, selected because of its promise of low specific fuel consumption.

The DC-7C is being submitted on the basis of a flow time of two years, or 1956 delivery. Pan American World Airways is reported actively interested, and perhaps near an order. PAA now has seven DC-7B's on order.

Briefly, the proposed DC-7C at this time sums up like this:

Maximum gross take-off weight, 138,000 pounds; landing weight, 107,000 pounds; zero fuel weight, 98,000 pounds; fuel capacity, 7512 gallons.

The weight increases are made possible by the increased climb power of Wright Aeronautical's forthcoming DA4 engine and a major wing modification, which also provides the space for the expansion in fuel capacity.

This modification entails the addition of 10 feet to the wing span at the center section. The heavy expense of a complete new wing is escaped because all other sections of the present DC-7 wing can be retained, except for a possible relatively minor modification to the wing tips. This, in turn, enables Douglas to keep the normal 5512 gallon tank installation of the DC-7 and then add 2000 gallons in stalk tanks under the wing for a new high total of 7512 gallons, without resorting to the "saddle" tanks which were devised to increase the fuel capacity of the present international DC-7B to 6490 gallons (PAA version, 6600 gallons).

The 7512-gallon capacity, it is reported, will give the proposed DC-7C a zero wind range of 3100 nautical miles with a payload of 15,500 pounds, or 3500 nautical miles with a payload of 12,500 pounds. In other words, it would be capable of non-stop operation across the Atlantic in both directions without sacrifices in payload. At the same time, it would retain the speed advantages of the DC-7 since the wing modifications and higher weights are said to entail little, if any, loss in speeds.

The wing change will eliminate the cabin noise problem in the DC-7C since it moves the inboard engines five feet out. This, however, will require changes in the present DC-7 control surfaces, such as a bigger vertical fin and different horizontal tail surfaces to compensate for a more critical one engine-out yaw problem.

Another interesting phase of the DC-7C is that it is proposed in two versions. One embodies the present DC-7 fuselage without change. The other adds 80 inches to the fuselage length. Reports indicate base price on the DC-7C would be about $2,250,000. For the 80-inch longer fuselage it would be $2,350,000.

The 80-inch longer fuselage would be standard for the projected turboprop DC-7D. Like other manufacturers of commercial transports, Douglas has long been interested in developing a turboprop plane, but has been blocked by the lag in engine progress. The Rolls-Royce RB109 looks like it might fit the DC-7 configuration quite well. It develops approximately 4400 shaft hp, which is just about right, and it is a modified two-spool design with attractive specifics. Douglas estimates that with this power the DC-7D would have a block speed of approximately 380 mph and a range of 4300 nautical miles with 15,000 pounds payload.

The RB109 is Rolls-Royce's first large turboprop. It is designed to develop about 4000 hp, reported to be the highest power that Rolls-Royce engineers consider feasible for a propeller-turbine engine. The RB109 has not yet started running but is due to go on the bench this fall. According to present schedules, the engine would be available for export in 1958. Thus, the DC-7D, if powered by this engine, is at least four years away.

Anti-Skid Development Speeds Up

As landings become faster, braking efficiency becomes more important; tests are encouraging.

By Joseph S. Murphy

DESPITE the growing emphasis being placed by the military services on the reduction of aircraft approach and landing speeds through such means as boundary layer control research, the fact remains that any results to be expected from this research are still a long way removed from today's operational need.

Landing speeds of new jet fighters and bombers coming off the production line continue to move higher above the 100-knot mark. As by-products of these speeds, airplane tire life is being drastically curtailed and pilot skill taxed to the hilt. Means of obtaining the last ounce of efficiency out of conventional brake systems have become virtually a must.

One major contribution to braking efficiency has been development of anti-skid systems. Although the number of actual production installations remains relatively small, in about every instance where the systems have been used landing and accelerate-stop distances have been shortened, tire blow-outs and flat spotting eliminated, and general tire and brake wear decreased.

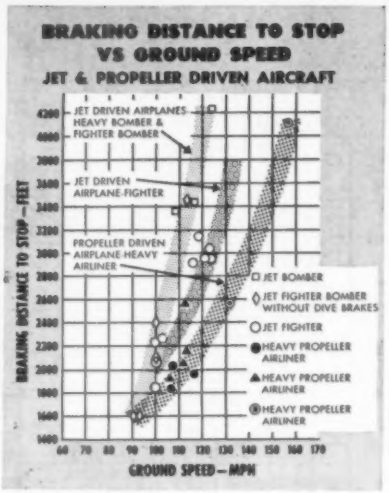
Most widely used to date of three major anti-skid devices is the Hytrol system produced by Hydro-Aire, Inc. of Burbank, Calif. Other units are the Decelostat manufactured by Westinghouse Airbrake Co., and the Goodyear Tire and Rubber Co.'s Skid Control.

Prototype of the Hytrol system was originally developed by Boeing Airplane Co. to correct for frequent skidding and flat-spotting of tires on the bicycle landing gear of the USAF's Boeing B-47 medium jet bomber.

Pointing up the trend toward wider use of anti-skid systems since then are:

- Adoption as a production item on the B-47 as well as the USAF's newer Boeing B-52 eight-jet bomber. Most recent edition of military aircraft to be equipped with a Hytrol system is a Navy Douglas A3D attack bomber.
- Absence of reversing props on jet and turboprop transports as an auxiliary braking device. Even assuming the eventual development of more effective thrust reversal designs, the anti-skid system still has much to offer in assuring best braking efficiency.
- Vickers Viscount turboprops on order by Trans-Canada and Capital Airlines will be equipped with a British Maxaret anti-skid, said to be very similar to Hydro-Aire's Hytrol.
- Major programs now being flight-tested to improve the operating safety of C-46 airplanes list the Hytrol installation as a key item.

Aside from production orders for the B-47 and B-52, a good yardstick of the growing attention being attracted by anti-skids has been the variety of Hytrol test projects on other types of aircraft over the past five years. After the system was developed for the B-47 back in 1948, testing was begun in 1949 on a USAF C-97. During 1950 three new programs, involving the North American B-45C bomber, Avro Jetliner, and Northrop F-89 Scorpion, got under way.



ANTI-SKID braking tests with "Hytrol".

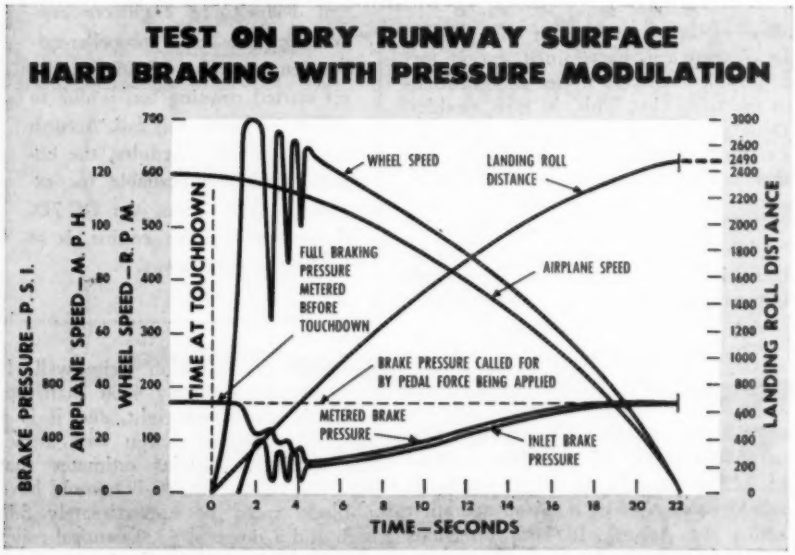
Experience on the Jetliner showed that tire and brake life were about doubled and the airplane has not experienced a tire flat-spot in better than 2½ years of operation. On the F-89, Hytrol cut the landing roll distance by more than 20%.

First use by commercial airlines began in 1951 when Hytrol was adopted by Northwest Airlines and installed on its fleet of 10 Boeing 377 Stratocruisers. This same year, testing was extended to the Convair B-36G and the Navy R6D, equivalent to the commercial Douglas DC-6B.

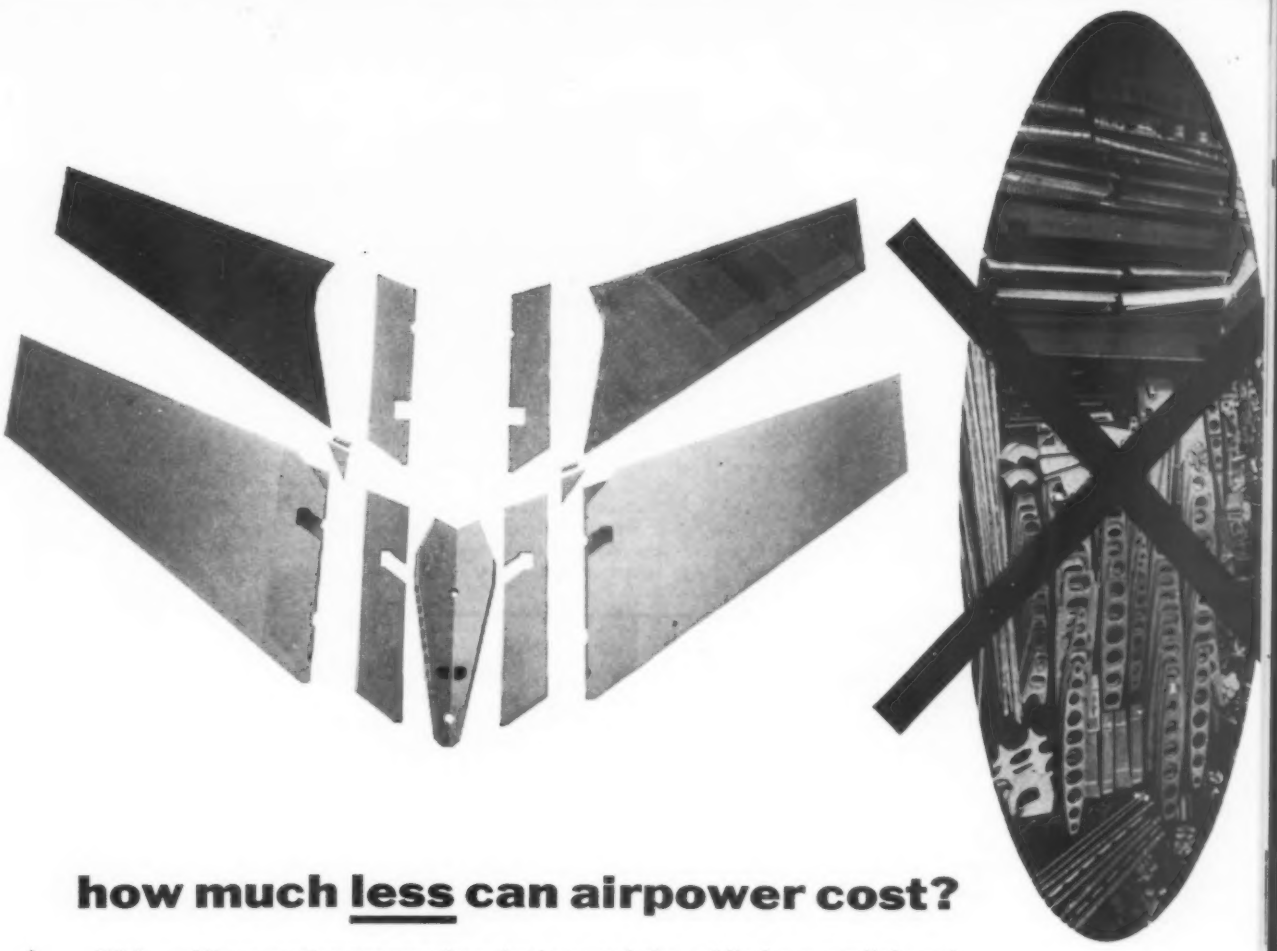
In the NWA tests, the airline's average of 188 landings per tire tread increased to about 259 landings with Hytrol, and tire flat-spotting, which usually accounted for 25% of tire removals, was eliminated. In the B-36G trials, according to Hydro-Aire, the airplane was stopped in 1000 feet without using reverse pitch propellers.

Five new Hytrol programs in 1952 involved the two Boeing XB-52 prototypes, Navy's Grumman F9F, and the USAF's Convair B-60 and Lockheed F94B. Success in the B-52 testing led to a production order for Hytrol, and experience on the F-94 showed almost a 50% reduction in the landing roll. Last year, new programs included a Pan American World Airways Boeing 377, CAA, United Air Lines', and Navy Bureau of Aeronautics' DC-4's, and two Douglas DC-7's. The system was also slated for installation on 31 USAF Lockheed GF-80 drones, and three prototypes and six production deliveries of the Lockheed C-130 turboprop cargo transport, first of which is due to fly soon, will be equipped.

CAA tests showed that Hytrol cut



LANDING ROLL performance with "Hytrol" anti-skid braking.



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Shown above is a sample from the record of the U.S.A.F. Matador B-61 Pilotless Bomber, top-rated major weapon which was designed, engineered and built, from concept to acceptance, without benefit of precedent.

The stabilizer of the Matador consists of 13 parts. Shown beside it are some of the more than 3,000 parts which would be required to produce the stabilizer for a multi-engine transport by traditional methods.

What of the Matador itself? New Martin processes and methods are producing this major weapons system for a fraction of the cost-per-pound of equivalent piloted aircraft—and to performance specifications more exacting than most.

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MARTIN

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the landing and accelerate-stop distances for its 62,500 pound gross DC-4 by 500-600 feet. In 1300 hours of UAL testing, which provided first certification of the system on a 73,000 pound DC-4, pilots found Hytrol "highly desirable" for landing under all runway conditions.

From the standpoint of maintenance, UAL reports the system operation as relatively trouble-free. After experiencing some difficulty with skid detector commutator wear early in the tests, no further trouble was reported following installation of improved units. Tire performance recorded by United showed that three main gear tires were removed after 1194 hours, and a fourth lasted the full 1300 hours. This compares with an average 800-900 hour tire life estimated by UAL for DC-4 airplanes.

Continuing Hytrol evaluation programs now in process involve the Allison (Convair 240) Turboliner, USAF McDonnell F-101 supersonic fighter due to fly later this year, and the C-46 safety projects of both the Aircraft Engineering Foundation and Air Carrier Engineering Service of Miami, Fla.

Navy Bureau of Aeronautics testing of Hytrol on R5D aircraft at Patuxent Naval Test Center should be completed in several months and is being conducted with a view toward equipping aircraft that operate into areas presenting ice-covered runway conditions.

Although interest among commercial operators of DC-6 and Lockheed Constellation-type transports appears to be increasing, major stumbling block seems to be the weight and initial cost of the system, according to one airline study. This cost was estimated at about $500 to $600 per wheel excluding installation expense, and the weight for a four-engine transport was placed at about 100 pounds.

The economics of anti-skid versus improved tire life was analyzed by the airline based on an estimated net gain in tire life of 23.1%. Converted to annual dollar savings, the airline figured it would take five years to amortize the cost of a fleet Hytrol installation.

The first major break that could change this whole picture and bring anti-skids into general use may come from the aircraft manufacturers who have been testing the devices with the idea of eventually asking CAA allowance for the improved landing performance they permit.

A similar situation with respect to performance allowance for propeller reversing had existed ever since new transports were equipped immediately following World War II. Only recently Pan American World Airways opened the door for recognition when it was granted partial credit for prop reversal in calculating landing distances for its operation into Hong Kong. • • •



Cub on Skis: Equipped with the Universal Landing Gear developed by the All-American Engineering Company, Wilmington, Del., Cub taxis toward beach. The device permits landings on snow as well as water and has sufficient clearance above bottom of wheels to allow normal ground landings, even on sand, pebbles, or muddy ground, the company claims. Envisioned are installations on transport-type aircraft which would permit take-offs and landings close by larger cities. "Hydro-Ports" located on the shore with ramps extending into the water would let planes taxi up to terminals.

News Briefs

MANUFACTURING

First commercial helicopter sold in the Netherlands, a three-place Hiller 12-B, has been purchased by Aero Ypenburg in The Hague. Another has been delivered to the Puerto Rico Water Resources Authority . . . **Price on the four-place** Helio Courier, which has a landing speed of 35 mph, has been set at $24,500 by the Helio Aircraft Corp. Six have been sold to date . . . **A small number** of Convair 340's in a version designated the VC-131D have been ordered by the Air Force. The order will absorb the remaining planes in a group that Convair had built without firm orders, it is believed.

A new agricultural airplane, the Fletcher Aviation Corp.'s FU-24, is scheduled to make its first flight any day. Prototype will be shipped to New Zealand. It was designed for spreading fertilizer over New Zealand grasslands . . . **New Douglas** engineering building at El Segundo includes a heliport on the roof. Staff moved into the building early this month. Douglas recently purchased a Bell 47 . . . **Deliveries of DC-7's** now total 38, 23 of which have gone to American Airlines. Full order of 25 for AA is scheduled for completion in August.

AIRLINES

United Air Lines has sold a DC-4 to the Lee Aero Leasing Corp. of Ft. Wayne, Ind. Price was not disclosed . . . **Probable cause** of an Eastern Air Lines Lockheed 749 accident at Idlewild late last year has been described by the CAB as "captain's loss of visual reference and orientation when he encountered drifting fog on take-off and the resultant inadvertent assumption of a descending flight path."

Modification of three Convairs for Saudi Arabian Airlines has been completed by the Temco Aircraft Corp., which is also converting a Convair 340 into an executive plane for the Saudi Arabian government . . . **J. H. Carmichael,** president of Capital Airlines, and Charles Murchison, general counsel, have returned from discussions of the Viscount with Vickers-Armstrongs . . . **Gross revenues** from military traffic in CAM operations during June was over $3.3 million. Almost 50% went to the Aircoach Transport Assn., with the Air Transport Assn. receiving about $800,000, and the Independent Military Air Transport Assn. getting the rest.

MILITARY

Maj. Charles E. Yeager, USAF, and Miss Jacqueline Cochran have been awarded the Harmon trophies for this year. Their achievements in supersonic research operations and flight through the sound barrier, respectively, were cited . . . **The RAF needs** U. S. financial support for its aircraft program, according to an editorial in the London *Financial Times.* The observation was provoked by decision of the U. S. House of Representatives to eliminate $75 million in U. S. funds destined for Britain.



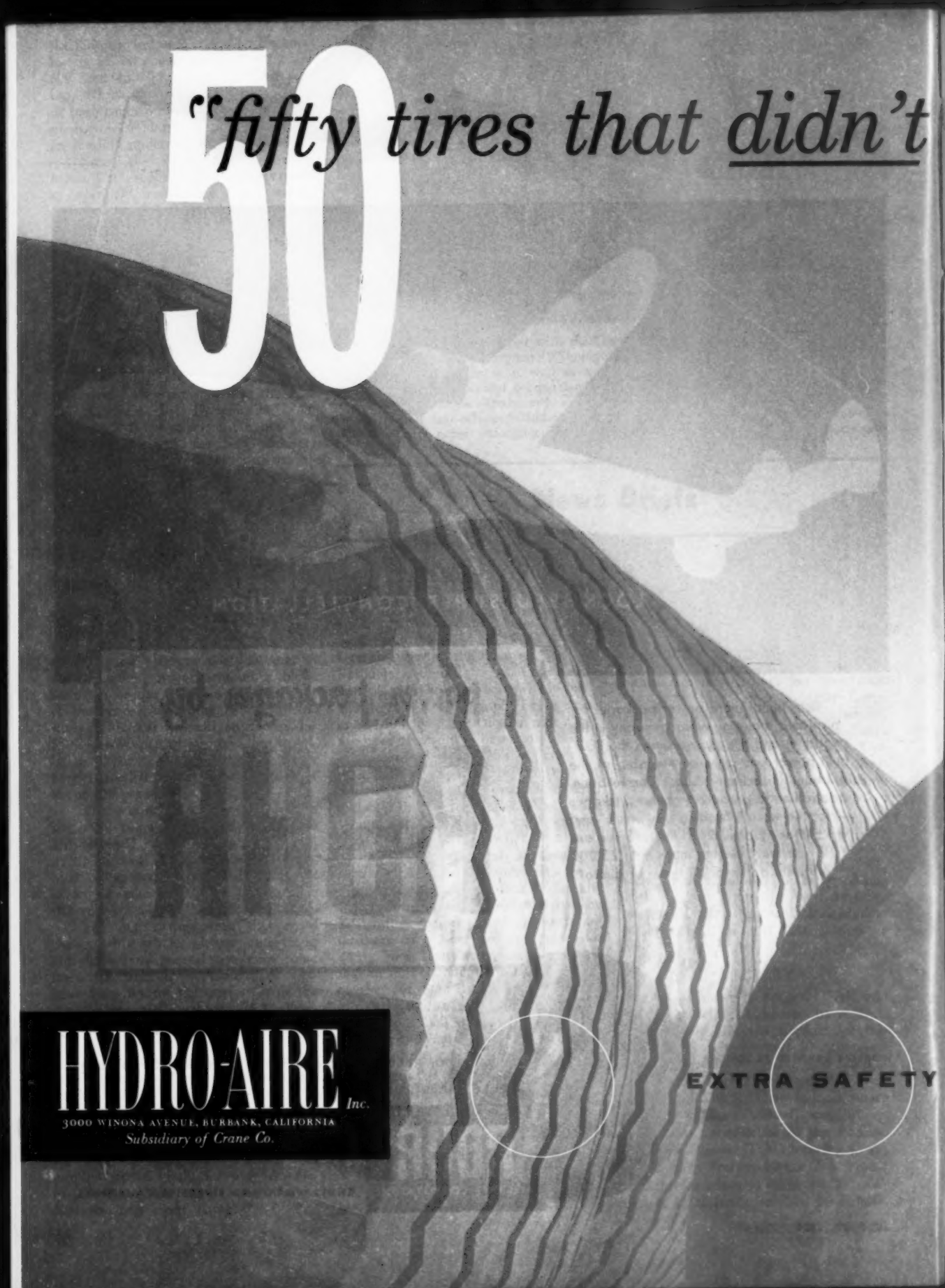
Rohr builds more power packages for airplanes than any other company in the world — and this picture shows the Rohr-built power packages on the wing of the big, beautiful Lockheed Super Constellation. In addition to producing power packages for the world's leading commercial and military planes, Rohr Aircraftsmen are currently making more than 25,000 different parts for all types of aircraft.

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't blow out!"



Mr. Tom Cooper, Superintendent of Aircraft Engineering at Northwest Orient Airlines, tells how Hydro-Aire's HYTROL has eliminated blow-outs and flat spots due to over-braking on Northwest's Stratocruiser Fleet.

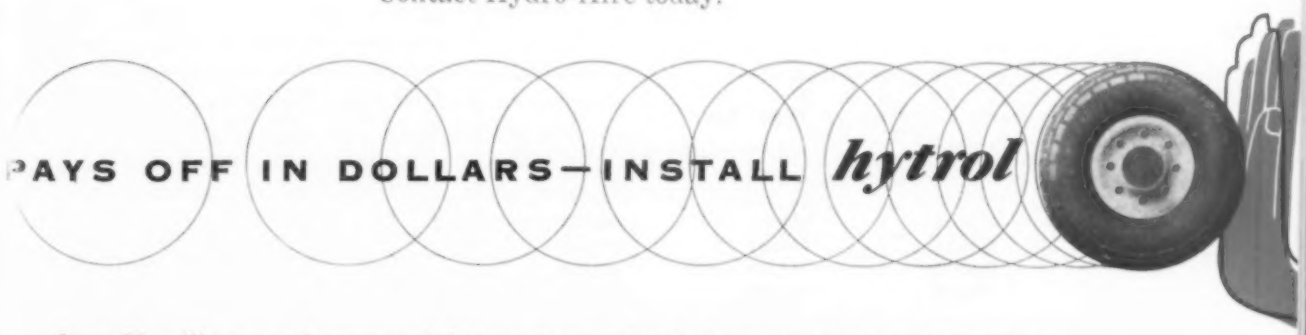
"The record shows that the HYTROL Anti-Skid Braking System saved us 50 premature tire removals in 1953, here at Northwest," says Mr. Cooper. "That's a big saving in replacement cost and non-schedule maintenance right there. But more important: every blow-out prevented by HYTROL is one less chance of airframe damage which might extend far beyond a mere tire change."

At a few hundred dollars apiece, 50 tires a year is an appreciable saving. But HYTROL means more than that—much, much more. It means extra protection and most important—Safety! A blown tire can cause damage, and even minor damage costs you. It costs you in disorganized schedules, in passenger morale and in cancellations due to last minute delays.

Protection from tire blow-outs and their consequences is just one more reason for installing HYTROL. HYTROL's main function, of course, is to provide your pilots with a braking technique that's automatically uniform and safe. Your least experienced pilot using HYTROL can make better stops than the veteran without HYTROL. Aircraft have been stopped on icy runways with HYTROL within 50 feet of certificated distances for dry runway conditions.

HYTROL is light, easily installed, compatible with existing brake systems. HYTROL protects very expensive equipment, and at the same time reduces overhead. Let's face it: HYTROL is just plain hardheaded good business!

Contact Hydro-Aire today.



Over 25 military and commercial types have already been equipped with HYTROL

How An Executive Fleet Grew Into Profitable Business

By Lois C. Philmus

THE ABC's of aircraft operations economics are that increased utilization results in reduced operating and maintenance cost. The hitch among business aircraft operators is finding out how to achieve such maximum utilization. The F. C. Russell Co. of Cleveland has found a solution—and a profitable one—by organizing a general charter service as an adjunct to its own executive needs.

In January, 1952, the company bought the assets and hangar lease rights of Aircraft Service Inc. at Cleveland Hopkins Airport, which became a wholly owned subsidiary. C. F. Bacastow, chief pilot and vice president, describes the philosophy behind the move as follows:

"Experience proved that 60% of the cost of operation for our airplanes was fixed overhead and 40% direct operating cost. This cost had to be justified as with any other business machine by weighing the advantages and comparing cost with other forms of transportation. At the same time," he continued, "as with any other business machine, we have consistently tried to reduce costs without sacrificing advantages. The problem obviously was to spread fixed overhead over as many hours or miles of transportation as possible and still retain the advantages of flexibility of fleet operation."

"An additional factor," Bacastow pointed out, "was a limited requirement for a larger airplane of the DC-3 category. An analysis of the type of trips indicated a maximum potential of 800 hours per year for a Bonanza and 1000 hours per year for a twin-engine airplane without any significant increase in overhead."

The company found that there was not sufficient executive travel to accomplish its goal. "Overemphasis on coordinating trips tended to destroy the flexibility of travel schedules," Bacastow states. "Some reduction in cost and increased utilization could have been achieved by reducing the number of aircraft. Again with a significant loss in the flexibility of our operation."

Charter service was the answer. By setting up Aircraft Service Inc., it was also possible for the company to maintain its own aircraft, reducing ground time loss. By maintaining its own aircraft, ASI found it was feasible—because of local conditions—to provide service and maintenance for other corporate aircraft owners.

The subsidiary is currently operating a *Cessna 170* for trips within a 150-mile radius; a *Beech Bonanza* for sales trips within 200-400 mile distances; a *Beech D-18S* for three to five passengers or where schedules require night or instrument flights; and a *DC-3* for larger groups of executives where speed with maximum comfort and facilities for business conferences or relaxation are required.

Scheduling No Problem

In setting up the general charter service, scheduling was viewed as a major problem. The Russell company schedules use of the aircraft for its personnel under the supervision of R. H. Collom, assistant to the president, who coordinates with the reservations department. When the charter service was decided upon, it was found that actual charter scheduling worked into the previous system so well as to be no problem at all. Here's how it works:

Collom continues to schedule company trips under established policies regarding number of passengers and intracompany priorities. When Collom approves a request for an airplane, the airport is notified. A charter flight becomes definite on the signing of the standard contract form. All trips are noted on schedule boards at both the Russell company offices and the ASI office. "This system," Bacastow notes, "enables both the airport and company to suggest alternate dates immediately when a trip is requested and the airplane previously scheduled."

This Is How Utilization Went Up.

YEAR	HOURS	MILES	PASSENGER MILES
1948	739:35	105,908	300,356
1949	1466.40	226,507	539,576
1950	1459:00	221,650	514,353
1951	1694:55	254,947	576,325
1952	2442:25	365,166	835,680
1953	2822:35	409,506	1,248,957

The economics of the Russell company charter plan were based on figures, such as the following, for the operation of a Beech D18S:

Direct Operating Costs

	Per Hour
Gas	$17.50
Oil	2.43
Routine maintenance	4.00
Engine overhaul	5.50
Airframe overhaul	5.00
Total per-hour cost	$34.43

Fixed Costs	Per Year
Depreciation	$16,000
Pilot salary and expenses	12,000
Insurance	4,200
Storage	1,800
Total annual cost	$33,000

At 500 hours flying per year the fixed cost figures to $66 per hour or a total fixed and operating cost of $100.43. When the utilization goes up to 1000 hours, fixed cost is reduced to $33 per hour and a total of $67.43 per hour. (See table for company's utilization history.)

As time went on, the fixed-base and maintenance phase became coincidental to the basic flight operation. "In providing this maintenance efficiently for our own fleet," the chief pilot states, "we found it economical to make the various services available for other aircraft owners." The subsidiary now has distributorship for Lear equipment; a Cessna dealership; and serves as representative for Aerodex DC-3 conversions. The Russell DC-3 serves as demonstrator, in this instance.

"In every case," Bacastow finds, "the F. C. Russell Company and our flying personnel realize side benefits which are becoming very valuable. For example, there is business and sales experience providing a background for the day of retirement from flying, as well as immediate increased income potentials for the pilots. A program of this sort is also more stable and therefore more secure than a one airplane operation." Collateral duties for pilots also utilize time that otherwise would be wasted, he adds.

The ASI operation requires 23 employes. In addition to Bacastow, there are A. C. Brown as service manager and J. R. Kelley as chief mechanic. Six pilots are employed and eight A&E mechanics. A radio department is headed up by J. R. Clemmons as manager.

Bacastow sums up: "The combined operation of a fleet of company aircraft and a completely equipped maintenance service has proven the most economical approach as well as the most efficient. Aircraft utilization has gone up and service for The F. C. Russell Company, which after all is the basic reason for our existence, has reached a new high."

• • •



New DOUGLAS DC-7 Uses New VICKERS® Variable Displacement Hydraulic Pumps

Cabin supercharger drives on the new Douglas DC-7 use the largest known variable delivery aircraft hydraulic pump . . . the new Vickers PV-3918. Like the DC-7, the PV-3918 is an outgrowth of previous successful designs.

This pump is a development from similar but smaller pumps used in the DC-6, DC-6A and DC-6B. The basic application was so successful it was adopted for the new DC-7. The new pump provides a 147% increase in flow capacity with only a 50% increase in weight. A special feature of the PV-3918 is an overspeed control which automatically limits the maximum pump delivery and accordingly provides another safety check on compressor impeller speed.

For further information about the numerous advantages of Vickers Variable Displacement Piston Type Pumps, ask for Bulletin A-5203.

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ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

White's Gain Is AF's Loss

WHEN A NEW YORK ATTORNEY took over a top Pentagon post for the Air Force a year and a half ago, he knew very little about AF policies and procedures. Yet this lawyer, H. Lee White, left the AF July 2 an acknowledged authority on this military service.

As Assistant AF Secretary (Management), White has been credited with getting the AF's fiscal setup and manpower situation in topflight order. In these areas, he learned all the answers—a fact that was evident in his numerous confrontations with Congress during the recent budget hearings. Favorable congressional response to AF budgetary requirements was a direct reflection on White's efforts.

How did he do it? We asked him just before he left, and he gave us an interesting insight into what it takes to be a $15,000-a-year assistant AF secretary.

An initial question, of course, was "Why are you leaving?" His straight-forward answer: "Money!" He then expounded on the intricate details of his financial situation. It made sense to us, too, that a job paying more than five times one's present salary is difficult to stay away from indefinitely.

Two Men Will Replace Him

It's tough on the AF to lose a man of White's caliber. Only the most meager consolation for his being gone now is that the government stands to gain, income-tax-wise.

White's work covered these broad areas: (1) fiscal management, including budget, accounting, and auditing, (2) manpower, personnel, and organization, and (3) Air Reserve, National Guard, and ROTC matters. His field was so extensive that the AF will soon divide it into two assistant secretaryships, one for fiscal and the other for manpower and personnel.

In the fiscal field, White initially set out to establish elaborate accounting systems which would tell the AF at any time exactly what it had and how much it was worth. He came up with the following:

- An all-inclusive *cost accounting system* that will enable the AF by July, 1955, to obtain figures quickly on the cost of any activity, such as running a depot or a squadron of aircraft.
- A *monetary inventory accounting system,* established on a world-wide basis in March, which now allows the AF to place a price tag on each of its 1,200,000 various items of property.

These systems will provide AF management with a summary of fiscal information never previously available, giving it essential data for more economical planning and proper adjusting.

In White's mind, perhaps his top contribution was a manpower manipulation in which the AF will now be able to get along with fewer men and yet have a greater number of technically qualified personnel. At the start of fiscal year 1955 this month, the AF had activated 115 wings with about 946,000 men, some 50,000 less than were originally contemplated for only 110 wings. For the eventual 137 wings by June, 1957, the manpower requirement has been set for 975,000. It is interesting to note that the previous administration had earmarked 1,031,000 for only 115 wings.

White, 41, has returned to private practice with the law firm of Cadwalader, Wickersham & Taft in New York City, where he will continue to specialize in corporation and financial law. He is a partner in the firm.

When he went to work for the AF on January 21, 1953, he had an impressive, but yet brief, background as far as key military civilians go. His Navy duty from 1943 to 1946, from which he emerged a commander, gave him a smattering of the military from the Navy viewpoint. His task then of handling manpower and personnel problems for the Navy Secretary was important, however, in his recent AF position.

His allegiance now is obviously with the AF since he has transferred from Naval to AF reserve status.

When White arrived in Washington, he said his main objective at that time was to "get familiar" with the intricate details of his surroundings.

"You will not succeed in Washington unless you are willing to learn as much about your detailed operation as possible," he philosophized. "No man can make policy living in a vacuum, nor can he see the mistakes that are being made."

White's arena was primarily the Pentagon. He made only one trip, a week's travel to California including stops at five varied AF bases. In his particular job, his theory on travel was "you can't make policy if you lose the day-to-day touch."

Regarding lagging AF obligations in fiscal year 1954 for aircraft and related procurement, the former assistant AF secretary expressed optimism for the future, saying that the AF "will be in good shape after a few months in fiscal 1955."

One of White's primary objectives during his tenure was to achieve "more fiscal flexibility because only with such flexibility can you get economy." He sought from Congress permission to transfer funds from one appropriation to another, having already made headway in this respect in some areas.

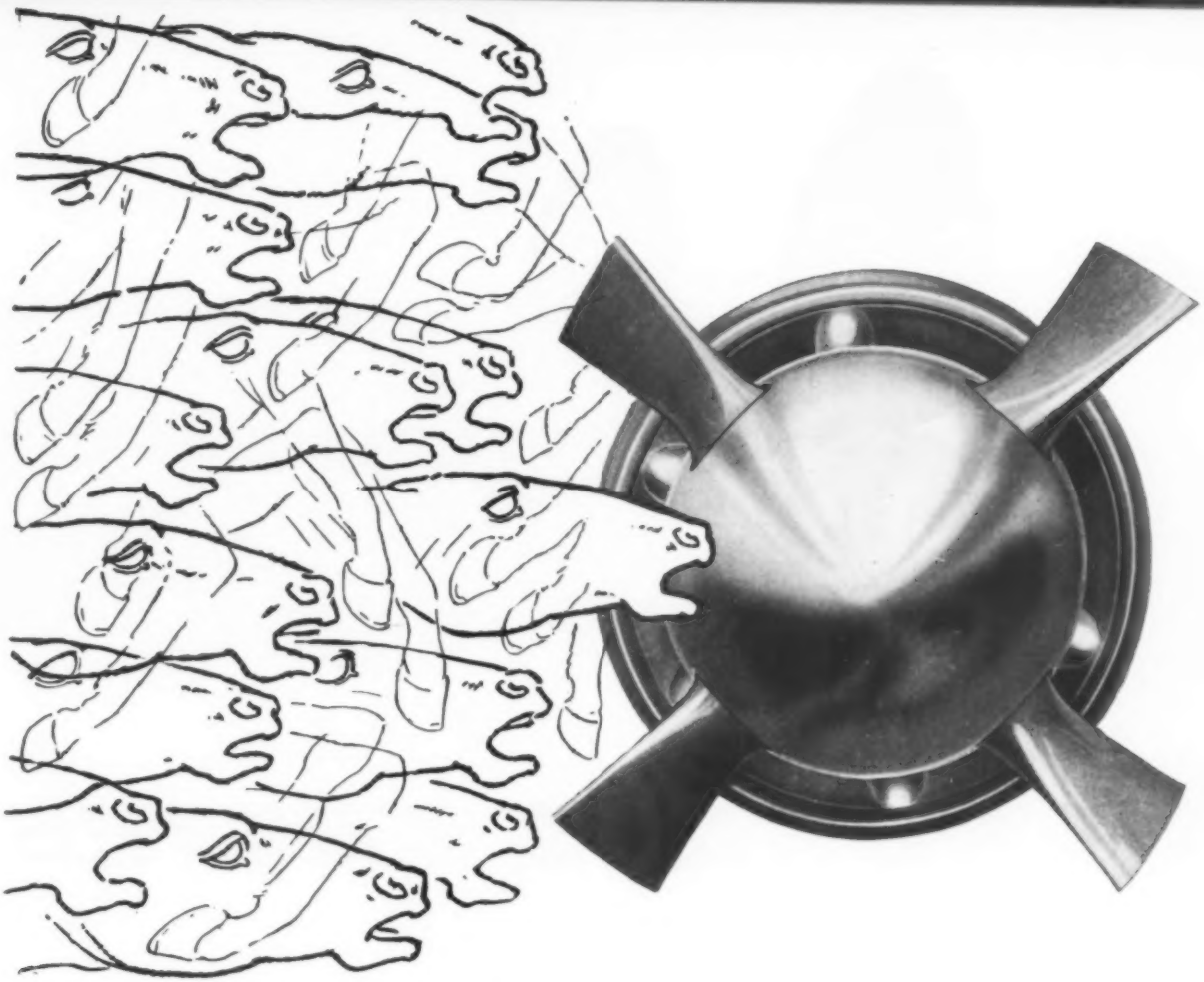
High Praise From Talbott

Recipient of the Exceptional Civilian Service Award just before his departure, he was lauded in this way by AF Secretary Harold E. Talbott:

"He was able to gain recognition that the Air Force has taken every management step practicable to insure that it and the nation get full value for every dollar expended. By directing exploitation of manpower savings, he has materially contributed to the accomplishment of a wing level structure earlier than had been previously scheduled."

Aside from his income, government service obviously agreed with White. An offer of a Defense Department assistant secretaryship could not keep him in the Pentagon at this time. Given more time to attain a personal financial backlog in civilian work (that is, make his pile), odds are highly favorable that White will eventually wind up back in the Pentagon.

. . . Harry S. Baer, Jr.



3,000 horses in 36 inches

From Napier of England comes the Eland, a fine example of modern design and manufacturing techniques in the aero-engine field. The Eland is a single-shaft propeller-turbine developing 3,000 e.h.p. at take-off, with a maximum diameter of only 36 inches. This small frontal area gives the engine an unusually high aerodynamic efficiency.

CHECK THESE OTHER IMPORTANT ELAND FEATURES:

- Low specific weight—0.52 lbs/e.h.p. at take-off
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- Easy maintenance—independent unit construction
- No turbine overheating—mercury vapour variable datum controller
- Safeguard—in the event of any mechanical failure between engine and gearbox the over-speed governor continues to be driven by the engine. The oil system pumps (driven by the propeller) continue to supply oil to operate the auto-pitch coarsening.
- Smooth acceleration and handling, thanks to excellent compressor characteristics.

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The new *Learstar* is the only production twin-engine, transport-category airplane that can cruise at over 300 mph TAS at 10,000 feet, the only one that can fly 3200 miles nonstop, the only one that can cruise at 270 mph TAS using only 100 gallons of fuel per hour, and continue at this rate for more than 10 hours. In addition, the *Learstar* offers 2000 feet per minute rate of climb, exceptional single-engine performance, and the ability to operate with ease from pocket-size, grass-runway airports. The *Learstar's* spectacular performance is matched by the scientifically planned *Learstar* cabin interiors, researched and developed during many years of experimentation under actual conditions of executive travel.



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YEARS AHEAD IN PERFORMANCE

After the Viscount, Vickers Has Many Plans



Edwards and Carmichael: "Capital will reap the reward."

George Robert Edwards, C.B.E., B.Sc., F.R.Ae.S., A.M.I.Struct.E, is perhaps the outstanding personality in the British aircraft industry today. His attributes are rare in a nation noted for its reserve. Gifted with an agile mind that grasps facts instantaneously, sorts them quickly, and stores them unerringly, Edwards is a devastatingly accurate opponent in conference and has an unfailing answer in interview.

GRE was born July 9, 1908, began his technical education in 1921 at the South West Essex Technical College. In 1935 he obtained his B.Sc. degree from London University and joined the design office of Vickers-Armstrongs at Weybridge as a drafstman. Within five years he was made experimental works manager, a job that wedded practical knowledge with theoretical knowledge. His success was such that he was made available, part time, to the Ministry of Aircraft Production to accelerate delivery in other airplane factories.

In 1945 he was a member of the Farren technical mission to Germany. In the same year Edwards was made chief designer at Weybridge and was then responsible for the Viking, of which over 160 were built. This was the first British postwar airliner and official emphasis was upon getting it produced and into service quickly. This was done in a little over a year. There followed the Valetta troop transport and Varsity crew trainer for the RAF (both based on the Viking airframe), achieving a production rate of 100 a year at the Weybridge plant.

Concurrently, Edwards' team started design of the Viscount, of which the first prototype flew July 16, 1948, and the first went into service with BEA on April 18, 1953. In the protracted negotiations with the government sponsors of the Viscount and the state-owned customers, Edwards' personality started to show itself and was recognized as Vickers-Armstrongs made him a special director in 1948, so giving him administrative authority. In addition to seeing through the development of the Viscount and selling it, Edwards at the same time supervised the design of the first RAF four-jet bomber, the B9/46, later to be called the Valiant.

Now, with the Viscount 800 well in hand, the Vickers 1000 military/commercial transport with four Rolls-Royce Conway by-pass engines is shaping well for flight in 1955. This, again, is an example of Edwards' decisiveness: the by-pass was a paper engine but Edwards backed Rolls-Royce to deliver the goods on time, as the company did with the Dart; and he is using the government prototype contract to cover his design for a commercial trans-Atlantic jet transport.

In September 1953 Edwards was made managing director of the Aircraft Division of Vickers-Armstrongs, giving him responsibility for the Supermarine fighter family as well as the Weybridge transports and bombers.

By Anthony Vandyk

WEYBRIDGE, ENGLAND—With Viscount sales topping the 100 mark and the big Vickers 1000 jet transport ordered into production by the British government, Vickers-Armstrongs' aircraft division executive offices here are a hive of activity. In the plant behind the offices Britain's first four-jet bomber to go into production is rolling off the lines in quantity, while a few miles away the prototype Vickers 1001 is taking shape.

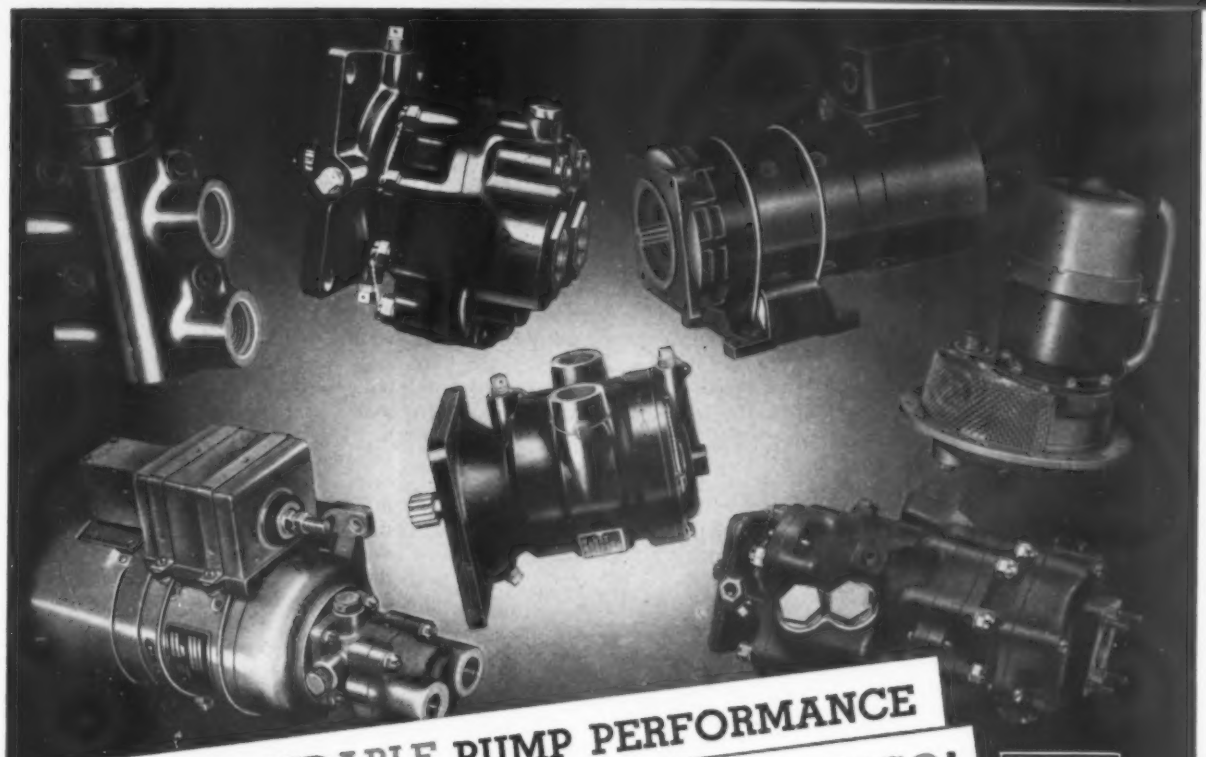
It was in this setting that George R. Edwards, head of Vickers-Armstrongs' aircraft division, gave American Aviation an exclusive interview in which he discussed Vickers turbine transports, present and future. All these aircraft, incidentally, feature Rolls-Royce engines—the Viscount uses the Dart turboprop while the Vickers 1000 will have the Conway by-pass.

Edwards cites six points as the main advantages of the Viscount over equivalent piston-engine transports: (1) Four-engine safety—it can be flown and landed with two engines out on one side; (2) Lack of vibration; (3) Quietness; (4) Reduced fire risk; (5) Speed; and (6) Cruising altitude of 25,000 feet.

His comments on Viscount "competitors" are pungent. He says: "Without being complacent, it is difficult to see where they are. No twin can match it, and the use of long-haul equipment on short/medium routes gives comfort without economy. There is, of course, the special case of operators who can keep their long-haul equipment utilized on their shorter routes when the long ones are off peak—but these are few, since summer and winter are the same for all sizes of plane.

"There has been a very strong flow to the Viscount wherever it is introduced, which has caused competitors to put long-range four-engine planes on to short- or medium-haul routes. These operators have now to decide whether or not to inject short-haul equipment (Viscounts) into their dual-purpose long-haul fleets."

On economics, Edwards quotes a completely independent and non-British team of experts as having done an evaluation to show that one Viscount is 3% more economical per seat-mile (44-seat version) at 300 nautical miles and 23% more economical at 1000 nautical miles than its nearest competitor. For an average of a full year of Viscount operations, British European Airways had a direct cost break-even load factor on international services of 29%. Total break-even loads should be somewhere between 51% and 33%, according to



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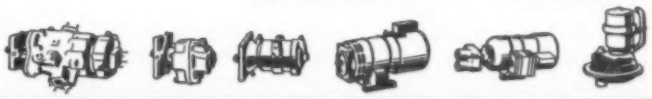
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route length and overheads (there are a lot of variables), Edwards says.

As of mid-May the Viscount had logged 23,000 hours in BEA service, 2000 hours in the 700 prototype, over 1000 hours in the original 630 prototype, and some 4000 hours in Air France and Aer Lingus service. BEA alone accumulated about 100,000 Dart engine hours in a fraction over one year.

In BEA's first year of scheduled Viscount operations (through April 17, 1954) both airframe and engine serviceability have been exceptionally high, according to Edwards. The engine overhaul hours have risen from 400 to 700, and 1000 hours is expected by the end of this year; some engines are already being experimentally run to 950 hours. Rolls-Royce does the Dart overhaul work for the three current operators and, Edwards says, the price is low enough for it to pay anyone to use the service. There are Rolls-Royce plants in Canada and Australia as well as in Britain.

The Viscounts now in airline service are of the 700 series which is best suited to stages of 300 miles and up to 1000 miles, but an alternative version, the 800, will be suitable, and economical, for stages as short as 150 miles. The 800 will have a slightly stretched fuselage capable of carrying up to 70 coach passengers on the shorter stages. Grossing 62,000 lbs., it will use the Dart RDa6 engine which is also going into the improved 700 series—the 700D.

The 700D will benefit on short hauls by having higher landing and zero fuel weights than the present 700. Vickers started delivery of the Viscount at a gross of 56,000. Then, anticipating higher power from the Dart promised by Rolls-Royce, the structure was beefed up to take a gross of 60,000 lbs. Pending installation of new engines the actual operating weight of the Viscount is 58,500 lbs.

Improved Darts Coming

Shortly, however, Darts with what Edwards describes as "improved interior arrangements" will be installed in all Viscounts and these will lower the specific and give higher cruise power, thus raising average speed by about 18 mph and bettering range a little. The full RDa6 installation brings in a new reduction gear to allow full take-off power of 1550 shp and with it 60,000 lbs. gross.

The 700D will be coming off the line at the end of this year while BEA will have its 13 800's by the end of 1956. About 31 Viscounts have been delivered to date. At the moment production is about three aircraft a month but this will rise to five a month in the fall. If necessary, output can be increased to eight a month, roughly 100 a year. Edwards points out in this connection: "Our job is to sell aircraft and to keep our factories busy—we don't want to pile up a stock and thus create a buyer's market." Would Vickers lease Viscounts to prospective operators? Edwards is very specific on this: "No. We are out to sell aircraft! Nearly everybody would like to lease; it's a good way of getting new equipment—from an operator's point of view."

How about more U. S. sales? Edwards explains: "Our policy so far has only permitted us to make an all-out sales drive in certain countries. Some of the operators who have bought the Viscount serve the U. S. (TCA and British West Indian Airways) and now Capital has joined the family. We have our best salesmen in Gordon McGregor, "Slim" Carmichael, and BWIA. We might demonstrate a Viscount in the U. S. soon but demonstration tours are expensive and tie up aircraft, pilots, and senior personnel."

Edwards feels that Americans who have flown Viscounts in Europe may do a lot toward selling more of the aircraft in the U. S.: "I hope they will go back home and ask why they cannot travel in equivalent comfort on all U. S. airlines, and that Capital will reap the reward for their enterprise. I think they will, because recently I have sat in airport restaurants and twice, quite by chance, I have heard Americans comment enthusiastically on the Viscount. So there is a stock of goodwill for our aircraft already."

Any Complaints?

How about difficulties with the Viscount? Operationally Vickers has heard of none from the three current operators. All three seem very satisfied, Edwards says. He stresses that there has been no difficulty in fitting the steep approach and climb patterns into air traffic control anywhere the Viscount has operated. Fuel reserves are ample for any stage length in the European network to allow delay in starting the climb if the weather is bad. The high fuel consumption of the turboprop on the ground is overcome by the use of a procedure whereby the pilot instead of requesting clearance to taxi, asks the tower for permission to start engines and, on getting it, immediately taxies straight out for take-off.

Does the Viscount require heavy-duty starting equipment? Yes and no. Although all Vickers aircraft can be started from inside (even the big Valiant bomber), Edwards considers that the place for ground equipment is on the ground, and that starting on the plane battery is not to be encouraged as a regular practise.

On the question of noise, Edwards has this to say: "The Darts have a peculiar tone when starting and opening up for taxiing, but this is far less noisy than a piston engine running up. The turboprop needs no run up. Noise at take-off and in flight is below average and with the new reduction gear the start-up will be quieter. The Port of New York Authority has already stated that they do not consider that the Viscount will raise any noise problems for them."

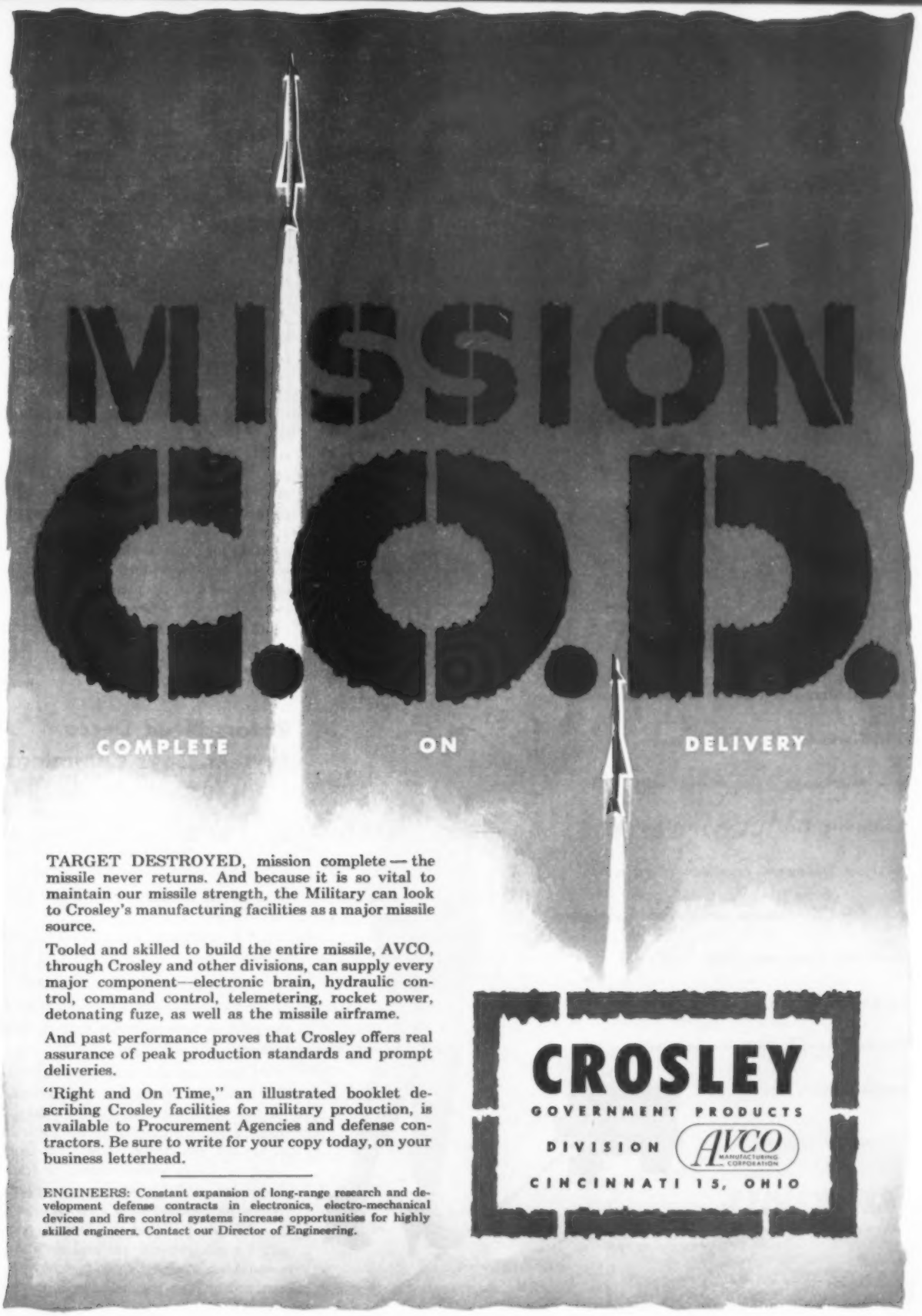
Are there any difficulties in "Americanizing" the Viscount? Edwards says: "No. We have fitted (and will fit) American instruments and equipment where requested but the main alterations so far have been those to meet the extreme winter conditions peculiar to Canada. In Air France's case an American automatic pilot was fitted. This caused some delay in getting the aircraft into operation but I think Air France would agree that there was not such urgency in getting it into service in the French routes in wintertime as there was for BEA to get the Viscount injected into the summer peak period traffic in 1953."

Not a "Flying Shell"

Edwards emphasizes that there is no such thing as a standard aircraft. He is equally emphatic that Vickers is not selling a "flying shell," although the company does its utmost to accommodate customers' wishes by offering variable seating lay-outs, types of seats installed, pantry or toilet at front or rear, two- or three-crew layout, combustion cabin heaters (this is for TCA; normally none are installed); an operator's standard instruments (such as autopilot, or even accessories) to suit his equipment stock may be fitted.

The average price for the Viscount at the moment is about $700,000, quite a bit more than it was, mainly due to rising labor costs. Vickers policy on spares is to sell at a reasonable price. Edwards attaches much importance to after-sales arrangements. He says: "We have followed our sales with a strategic placing of Vickers bases across the world—Australia, Canada, Caribbean, possibly Africa—carrying spares for operators. Viscount purchasers first have use of engineers without charge, then visiting technicians, finally a high-powered resident representative. Naturally, training courses are given to purchasers' aircrew, ground staff, and technicians."

Looking to the future, Edwards alludes to the Vickers design study for a transport using the new Rolls-Royce 4000-hp turboprop. He says: "We are convinced that there is a need for a DC-4/6 replacement, say up to 2000-mile stage lengths, weighing 90,000 to 100,000 lbs. Engine availability is the



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key. At present we are naturally concerned with selling Viscounts, and we are only in the early stages of considering its successor, but I can tell you we are looking to 400 mph-plus cruising speed. It might have a high wing, depending on customer requirements. BEA is getting remarkably favorable reactions from Ambassador passengers, but it depends on how many airlines are willing to accept the operating disadvantages of the high wing in order to achieve passenger attraction. A high wing can cost you 2000 lbs. in structure weight and makes freight space a problem."

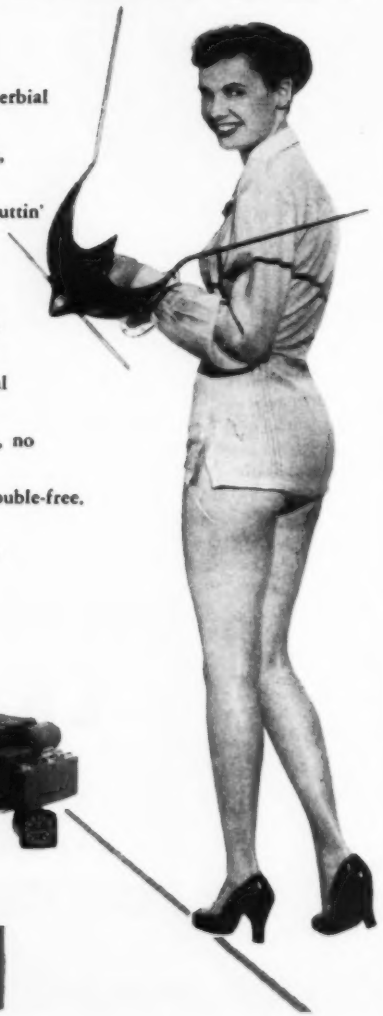
For long-range (trans-ocean) work Edwards definitely does not believe in the turboprop. He says: "Surely the only way to cross the Atlantic is the quickest. If you can do it in five to six hours instead of eight or ten, we think that is the answer—both for the passengers and the operator." Comparing the turbojet with the by-pass engine for this type of operation Edwards would "take the by-pass every time: it will give the necessary cruising speed, with the lower fuel consumption to make the aircraft economic."

Edwards considers that the Conway by-pass is "the most important engine designed since the war." It will be used in the Vickers 1000 and will insure regular, non-stop operating London-New York all the year round with a paying useful load. The Vickers 1000 is being developed for military use but the prototype will be available for working up a commercial production version available in 1960. The military version has been ordered into production as a replacement for RAF Transport Command's Handley Page Hastings.

The Vickers 1000, as well as being a large aircraft, has a very large wing area. Edwards explains this in the following words: "We believe in moderate wing loadings. A jet aircraft flies high and fast, and needs the wing to support it at altitude and also to get it off the ground. Our compound sweep provides a large root chord, giving high critical Mach number at the root and also ample stowage space for the by-pass engines." The engines are buried and Edwards has definite views on podded installations: "When we are asked to cruise so fast that we must use a wing too thin to hold the engines, we will put them outside." In fact, the impression that is taken away after an interview with George Edwards is (with apologies to a well-known make of automobiles) "When better trans-transports are built, Vickers will build them." • • •

Model

PERFORMANCE!



The proverbial shortest between the proverbial two is the good old straight and narrow, dually illustrated here by (1) Straight-struttin' Sally Eckelberry (21, 5'7", 120 lbs., black hair, brown eyes), and (2) ARC's straight-flyin' Type 15D VHF Navigational Receiving Equipment. Regardless of price, no other Omni is so precise, compact, and trouble-free. That's why pilots prefer ARC. That's why Southwest Airmotive is proud to distribute Aircraft Radio Corporation's complete quality line.



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Rotors Need Decca System, Says Cummings

The Decca navigation system is "almost tailor-made" for the helicopter, in the opinion of Robert L. Cummings, Jr., president of New York Airways. Cummings has cited three characteristics of Decca which make it "indispensable" for rotocraft:

- Its ability to work down to zero altitude;
- Its accuracy;
- Its presentation of information to the pilot in a form that is easy to interpret.

Cummings also maintained that an area coverage system is more practical for helicopter use than a system relying upon fixed tracks. "It seems clear to us beyond any doubt," said Cummings, "that the Decca system should be tested under actual helicopter operating conditions for a period of at least 12 months . . . We do feel that the Decca system offers a navigational aid and an ability to establish position fixes which is not matched or even paralleled by any other system."



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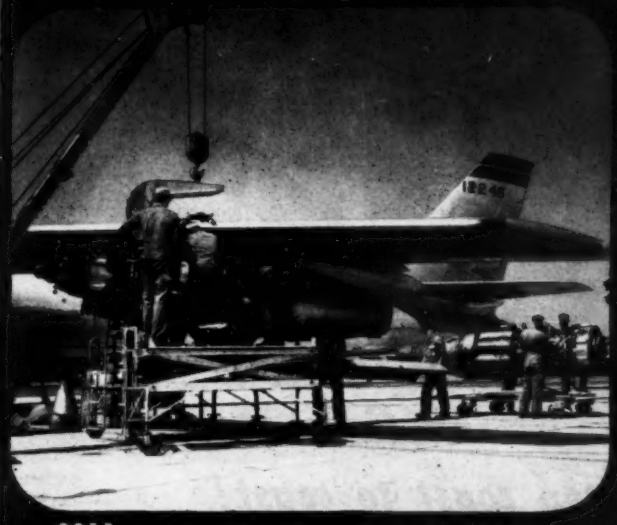
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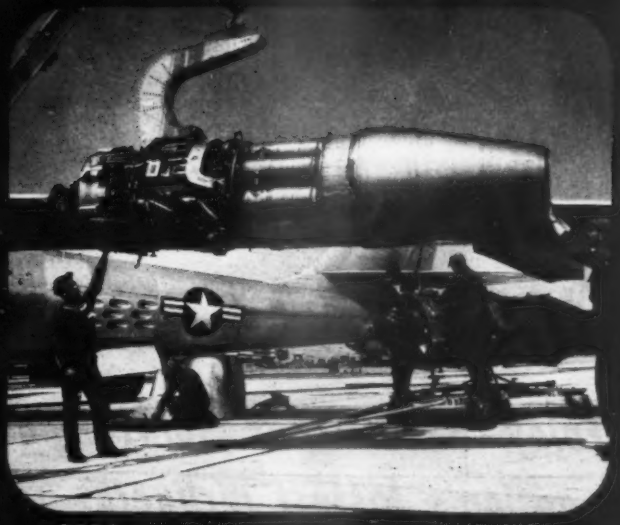
0900 Stepping up on their work stands, line crew removes outboard engine cowlings.



0906 Quick-disconnects of J47 electrical, fuel, and oil lines are completed.



0911 Crane car lifts engine forward as replacement unit rolls into background.



0914 Engine is swung away from wing as new J47 is pulled into position.



0919 New engine hoisted up while crew installs J47 fuel, oil, and electrical lines.



0924 Aluminum "bullet nose" and cowlings are clamped on just before running engine up.

G-E ENGINES POWER S.A.C. OPERATIONAL MULTI-JET BOMBERS



Simple design of G-E J47 helps S.A.C. crew make

25 MINUTE ENGINE CHANGE!

MacDill AFB photos show how G-E engines, Boeing wing pods, and S.A.C. ground crews have cut bomber maintenance time and costs

A Strategic Air Command B-47 ground crew recently changed a G-E J47 jet engine in 25 minutes. We mention this for two reasons: twenty-five minutes is about *one-eighth* the time it used to take to change a WW II bomber engine. And the 25-minute change is typical of the ways in which the J47's clean design and durability help S.A.C. save time and money.

Good design: Easy maintenance

The J47's relatively simple construction makes the engine very easy to maintain, compared to other types of powerplants. For example at MacDill AFB, S.A.C. crews get up to 600 hours from J47's before minor repair. This is nearly twice the minor repair average of S.A.C. piston engines. And naturally the cost of J47 maintenance—and the human effort involved—is less.

Good design: Long operating life

Proof of the J47's durability lies in the fact that B-47's attached to the 306th Bombardment Wing have gone more than 600 hours *without a single engine change*. That's the equivalent of 15 nonstop globe encircling flights. A Tampa newspaper has quoted a B-47 ground crew as calling their J47's, "The engines that never quit."

Facts like these illustrate the J47's contribution to the Strategic Air Command. *Section 232-2, General Electric Company, Schenectady 5, N. Y.*

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EASE OF J47 MAINTENANCE is illustrated by this photo of a S.A.C. B-36 outboard wing pod. J47 installation can be removed quickly for minor repair and overhaul.



LONG J47 OPERATING TIME BETWEEN OVERHAULS is typified by B-47 No. 12234 of S.A.C. 306th Bombardment Wing. Aircraft flew more than 600 hours without a single engine change.



$22 Million GE Award Tops New Contracts

The Air Materiel Command has awarded a $22,142,210 contract for turbojet engines to the General Electric Co., Cincinnati, according to a Department of Commerce listing of contract awards. Total value of the awards is over $50 million.

North American Aviation, Inc., Los Angeles, was awarded a three-ply contract totalling nearly $10 million. Specifically, North American's contract awards were $6,895,320 for spare parts for F-86 aircraft, $1,374,000 for facilities for the production of rocket engines, and $1,272,515 for facilities for the production of the F-100 series aircraft.

Other Air Materiel Command contracts announced by the Commerce Department in the listing were:

Minneapolis-Honeywell Regulator Co., Minneapolis, $5,599,906 for autopilot components.

Douglas Aircraft Co., Los Angeles, $3,550,000 for facilities for the production of B-66 and RB-66 aircraft components.

Link Aviation, Inc., Binghamton, N. Y., $2,848,079 for flight simulator spare parts.

Wolverine Diesel Power Co., Detroit, $2,526,264 for generator set spare parts, engineering and maintenance data.

General Electric Co., Schenectady, $1,035,940 for generators and voltage regulators, and for control panel spare parts.

Pastushin Aviation Corp., Los Angeles, $758,657 for jettisonable fuel tanks for F-89D aircraft.

Red Bank Division, Bendix Aviation Corp., Eatontown, N. J., $747,780 for motor generators.

Wright Aeronautical Division, Curtiss-Wright Corp., Wood-Ridge, N. J., $739,000 for facilities for testing ramjet engines.

The Studebaker Corp., South Bend, $645,000 for preparation of tooling for shipment.

Allison Division, General Motors Corp., Indianapolis, $613,000 for spare parts and maintenance tools for turboprop engines and propellers.

Bendix Products Division, Bendix Aviation Corp., South Bend, $320,357 for brake assemblies.

West Coast Talk

By Fred S. Hunter



Today, the Douglas Aircraft Co. has no trouble in establishing a line of bank credit up to a round $100,000,000. But it wasn't always thus. **Donald W. Douglas,** reminiscing recently at the Santa Monica Chamber of Commerce, told about a couple of his early-day experiences with bankers. In those days, Douglas drew $25 a week salary, if there was that much money left after paying off everybody else, and sometimes, he admits, there wasn't. On one occasion, the company had a good year-end balance, but Douglas has been in the habit of borrowing working capital without showing his exact condition and he decided it might not be wise to set a new precedent by showing his books. But when he got up to leave after negotiating the loan, the banker asked: "By the way, have you a balance sheet?" Douglas produced it. When the banker nodded approval, it was Douglas' turn to ask: "Why haven't you ever wanted to see the balance sheet before?" The reply: "If I had, I couldn't, as a conscientious banker, let you have the money."

•

Gen. Joseph T. McNarney is a good example of how a military man can be a competent civilian executive. It's generally conceded the job he is doing as president of Convair is strictly top-flight. But not all the military has rubbed off yet. For example, his associates know that when he starts calling them "Mister," it's a sure sign something has gone wrong. But when he snaps out: "Has this been cleared with the division commander?" it's the tip-off his dander really is up.

•

Bill Shepherd, chairman of the Los Angeles Chamber of Commerce aviation committee, runs a tractor company which has been using executive aircraft for 20 years, and it is his considered opinion any other form of travel belongs in the same category with the ox-cart. Recently, to humor his 10-year-old son, who had never made a trip by automobile, only by air, he went back to Detroit and drove out a new car. He didn't get over the horror of the experience until **Norm Larson** finally called him up and told him his new Beech Twin Bonanza was ready to be delivered.

•

Speaking of executives, Convair can now count a total of 25 executives (240's and 340's) in operation. Here are the private companies having 340's with executive interiors: Air Fleets, Aramco (2), Convair, Jorge Pasquel (Mexico), Phillips Petroleum, Texaco, Union Carbine & Chemical, Union Oil, Chicago Tribune, American Can. Companies operating 240's include: Convair, Ford Motor, General Motors, Texaco, Imperial Oil, and Standard Oil of New Jersey. Convair itself has both a 240 and a 340 and so does Texaco. The American Can plane represents the most recent sale, and is a conversion of a ship originally ordered by Philippine Air Lines. The Imperial Oil and Standard of New Jersey jobs are from the group of five 240's brought back from China by Gen. Claire Chennault's Civil Air Transport group. There are seven military Convairs classified as executives. The Air Force has four 240's in the executive configuration and two 340's and the Navy has one 340. One other executive type is UAL President W. A. Patterson's 340 which would make it 26, but on Convair's books this is classified as an airline plane.

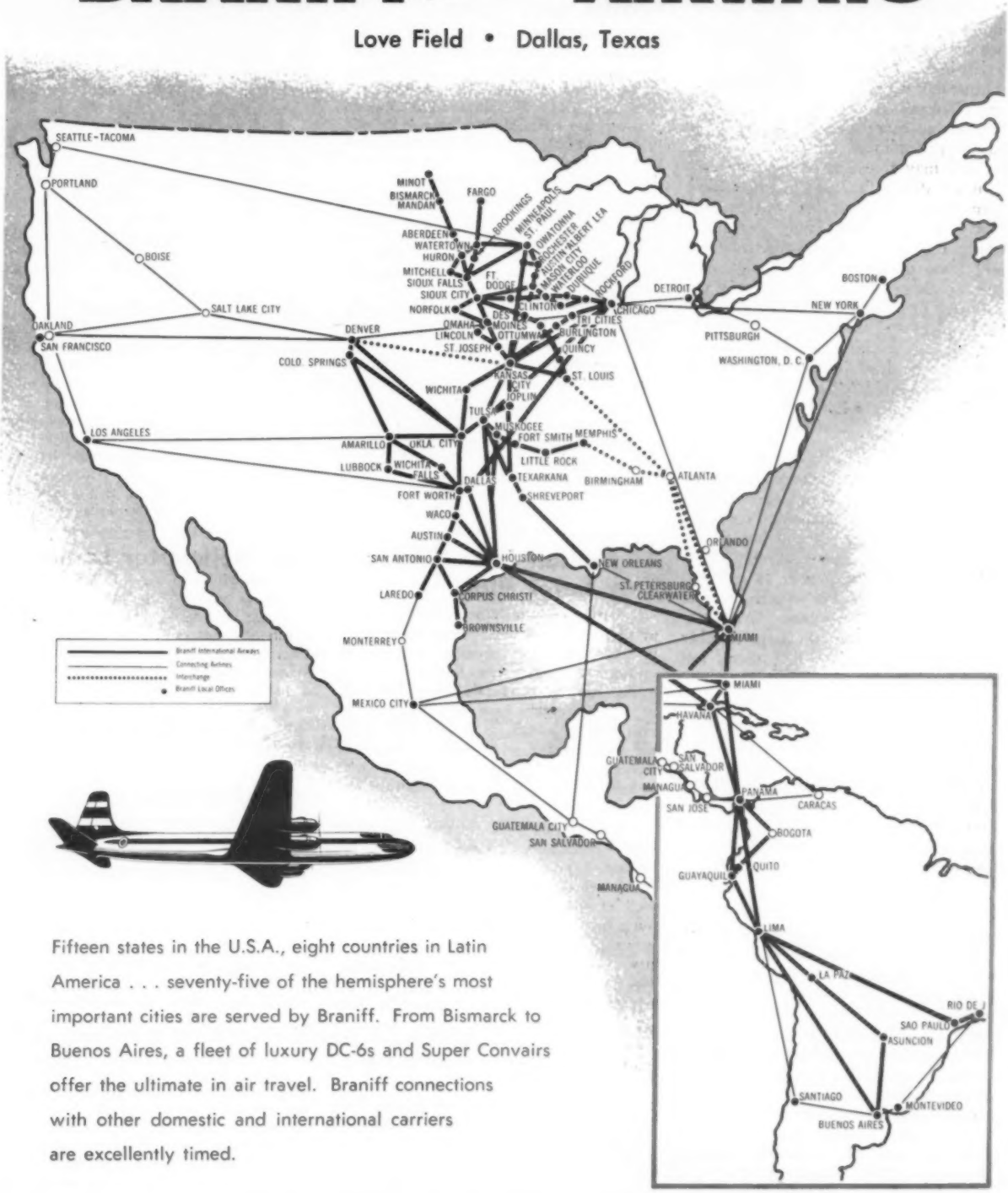
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Marv Landes says Western Air Lines tacked the name "Californian" on its crack champaigne-and-orchid schedules between Los Angeles and Seattle because a survey showed passengers like name trips. . . . The RB-66A was the first plane **Donald W. Douglas, Jr.,** sold after being placed in charge of military sales for the company. . . . **Bob Montgomery,** regional sales manager for TWA, spends an average of 20 days in the month traveling the territory. . . . **Capt. Eddie Rickenbacker** recently made the rounds of Convair, Douglas, and Lockheed checking on turboprop developments. . . . Old timers at Douglas (and they don't have to be so old at that) remember that **Lt. Gen. Donald L. Putt** was co-pilot on the first flight of the famed Douglas B-19.

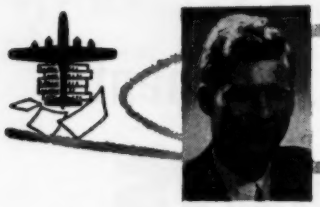
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Fifteen states in the U.S.A., eight countries in Latin America . . . seventy-five of the hemisphere's most important cities are served by Braniff. From Bismarck to Buenos Aires, a fleet of luxury DC-6s and Super Convairs offer the ultimate in air travel. Braniff connections with other domestic and international carriers are excellently timed.



AIRLINE COMMENTARY

• TRAFFIC • SALES • PUBLIC RELATIONS • *by Eric Bramley*

Domestic airlines, in our opinion, must soon take a long look at the practice of serving free drinks. The drink-on-the-house is now confined to transcontinental non-stops (plus champagne on Western's two west coast "name" flights) but more than one sales official has expressed to us the fear that competition may spread it to one-stops and then on down the line. Airlines have been trying to think up ways to increase revenues—but bills for hard liquor run up mighty fast. Passengers will come to expect a free drink as a part of airline service, just as they expect free meals. It should also be noted in passing that Clarence Sayen, president of the Air Line Pilots Association, opposes any drinking aloft. He claims that pilots shouldn't have to play nursemaid to people who can't even hold one drink.

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Recommendation to domestic coach operators: why not make it a practice to load all families with children first, so they can sit together? Not only make the families happy, but please people traveling alone who may rightfully object to riding next to a lively, talkative youngster. We've seen families scattered all over airplanes. We mention coach because of the large number of people with kids riding them, but maybe it should go for first-class too.

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Question that's bothering some people: how are travel agents (very important people in selling international travel) going to keep details of all the new installment plans straight—down payments, length of time to pay, clearance of applications, etc.? Will confusion retard sales?

•

Around the industry: Air Transport Association hopes to have its survey of potential vacation and pleasure travel market started by September . . . More reports of business firms, with reduced travel budgets, turning to air coach . . . Congratulations to Murray Barnes on his promotion to system advertising manager of Pan American . . . Never realized until now that excess baggage charge works out the same as per-pound charge for carrying a passenger and his allowable baggage (based on 200-lb. average weight) . . . And that if you ride coach your excess charge is based on first-class fare.

Traffic and Sales

Colonial and National plan to adjust fares to the next highest dollar. Move was started by Delta-C&S . . . **Load factor** during the first week of American Airlines' new DC-7 Washington-Los Angeles non-stop was running 90%. Service opened July 1 following ceremonies at which Mrs. Richard Nixon, wife of the Vice President, christened the inaugural plane . . .

Jim Austin, Capital's vice president-traffic and sales, promises that the program to introduce the Vickers Viscount will be the biggest sales promotion in Capital's history . . . **United Air Lines** has introduced a reservations system for domestic air freight. Shippers can specify either flight or delivery time wanted . . . UAL on July 1 dropped stateroom charges on its north-south Pacific coast Stratocruiser service . . .

Pan American World Airways has set up "tourist corners" in sales offices at Rio de Janeiro, Buenos Aires, Lima, and Santiago, and they'll be installed at other stations soon. Purpose is to give tourists correct information on sightseeing, shopping, foreign exchange rates, sports, nightclubs, etc. . . . **PAA** is using real Continental China on President Special flights . . . **Newest Northwest Airlines** giveaway item for passengers is a polyethelene bag called the "Strato-Pac," for holding shoes, clean shirts, sweaters, diapers, etc. . . .

Western Air Lines has completed a year's operation using Burroughs "Ticketeer" automatic ticketing machines at 12 major terminals, and says the device is a "complete success." At the 12 stations, Ticketeers are handling from 53% to 90% of all ticketing . . . **Philippine Air Lines** has closed all U.S. offices and is now represented in the U.S. by Ansor Corp., 212 Stockton St., San Francisco, and 1 Wall St., New York . . .

Interesting to note that Aer Lingus (Irish Air Lines) is using U.S.-type sales promotions. It has a contest in cooperation with Dubtex, clothing maker, offering free clothes and free trips to Paris and London for people guessing flight times of first Viscount schedules from Dublin to those cities. Company has also arranged with Kellogg's Cornflakes to print cut-out models of a Viscount and a Dublin Airport on its packages . . .

$1 Million from PAA's 'Pay Later Plan'

Pan American World Airways tells us that its "Pay Later" installment plan, in effect only two months, has put $1 million worth of new business on the books. And PAA officials claim that 90% of this wouldn't have been sold on a cash basis. Customers have ranged from the stenographer who financed $33 of a Bermuda trip to a businessman who bought $4,000 worth of round-the-world tickets.

Meanwhile, two more travel credit plans have been announced. TWA on August 1 puts into effect its "Time Pay Plan" which will apply to domestic as well as international routes. Traveler fills out a brief application form, makes a 10% down payment, has up to 20 months to pay. Plan was worked out with Pacific Finance Corp.

SABENA Belgian Airlines is now offering an "Easy Pay" plan, presently available only to people in New York City, with no down payment and up to two years to pay.

Incidentally, these companies will be happy to know that National Airlines, which claims to have been first with installment ticket-buying (in 1950), informs us that "to its knowledge it has never lost a cent, or a customer, on any of the transactions yet."

Low Helicopter Loads

Mohawk Airlines carried only 53 passengers on the 71 helicopter flights (8-passenger Sikorsky S-55) during the first month of operation between Newark and Liberty-Monticello, N.Y., and asked CAB for an immediate fare reduction. New fare is $12.95 one-way and $24.60 round-trip, or 15.6c a mile for the 83-mile trip. Old fares were $18 and $34.20. MOH operates the service without mail pay or subsidy.

New Products

An intriguing new product is American Electrical Appliance Corporation's Instant Boilmaster, thermos-type electrical cooking unit, which could have a number of airline applications. It will cook, boil or heat, almost instantly, such items as coffee, tea, soup, vegetables, frozen foods, babies' formulas, etc. Outside remains so cool it can be held in the hand while contents are boiling; contents remain hot when it's disconnected. Capacity is six cups, height 7⅜ inches, diameter 4½ inches. Manufacturer is located at 1060 Washington Ave., Bronx, N.Y.

First installation of a Tel-O-Tronic hotel reservation board is being made at San Antonio International Airport, according to Eli Palmer, president of Tel-O-Tronic Inc., 501 E. Dewey Place, San Antonio. Hotels which rent space on the board post their available accommodations electronically. Arriving passengers can then call for reservations.



STRAIGHT UP AND AT 'EM

U. S. Navy VTO Fighters powered by ALLISON Turbo-Prop Engines

HERE you see the Navy's approach to the problem of providing protection for wartime convoys – two revolutionary new interceptors that take off vertically and can operate from the deck of a freighter or from any ship the size of a destroyer.

Both the Convair XFY-1 and the Lockheed XFV-1 are powered by an Allison twin-power section Turbo-Prop engine delivering more than 5500 horsepower.

These new planes combine the take-off and landing features of a helicopter with the high-speed performance of a fighter plane. They require no runways, can land in a very small area. Without the dual rotation feature of the Allison T40 Turbo-Prop engine, flight control would be impossible during take off and landing.

Now undergoing preliminary testing, these experimental VTO fighters are further evidence of the far-sighted policy of the Bureau of Aeronautics in sponsoring Turbo-Prop development. Allison is proud to be supplying the engines for both of these planes—proud, too, of its leading role in the design and manufacture of this promising new type of aircraft power.*

**Also Builders of T56 Turbo-Prop engines and J71, J35 and J33 Turbo-Jet engines.*

GM GENERAL MOTORS Allison

DIVISION OF GENERAL MOTORS, INDIANAPOLIS, INDIANA

CAB Will Consider Mexico City Case

Over the charges of dissenting member Josh Lee that its action was "unfair" to Eastern Air Lines, the CAB moved early this month to proceed with determining which U. S. carrier should fly non-stop between New York and Mexico City in competition with Air France.

Board majority named American, Eastern, and Pan American as applicants to be considered. But Lee objected on grounds that the majority was ducking some major unresolved issues in connection with Eastern's New Orleans-Mexico City route.

To gain the non-stop rights, American and Eastern asked consolidation of certain of their routes which would then permit overflying of junction points at which stops are now required. In the case of American, Dallas is the junction.

But in the case of Eastern, New Orleans is only a hypothetical junction because it has never been permitted to operate its New Orleans-Mexico City certificate awarded by CAB in 1946.

Lee objected to CAB going ahead with the case without determining through President Eisenhower whether Eastern still has a New Orleans-Mexico City route. White House action was suggested because it was former President Truman who "withdrew his approval" of the Eastern certificate (and similar certificates of Western and Braniff). Question now is whether Truman's action was valid.

Lee said Eastern is at a "distinct disadvantage" because it "dares not rely solely upon the consolidation of its two routes when there is doubt as to the validity of one of them. Therefore, it must also prove public convenience and necessity for a new route from New York to Mexico City."

Lee also suggested that the Mexicans may be "annoyed" at CAB's decision to consider new service to Mexico "just before entering into bilateral negotiations with that government."

Braniff-TWA Interchange Approved

CAB has granted tentative approval to a Braniff-TWA interchange service between Houston and San Francisco, but again refused to add a competing southern transcontinental interchange operation between Florida and California as proposed by Eastern, Braniff, and TWA.

The two-way interchange would be restricted initially by CAB to one daily roundtrip between Houston, Dallas/Fort Worth, Amarillo, Los Angeles, and San Francisco, with Braniff operating Houston-Amarillo and TWA Amarillo-San Francisco.

An agreement was filed by the carriers last week with the decision now up to CAB to approve with or without hearings. Tentative approval was that such an operation would be in the public interest. Final approval will weigh objections of competing lines, among other things.

Board also instituted an investigation to determine if Braniff and TWA should not perform the service on an unrestricted basis, as contrasted to the one-flight-per-day specified in the tentative approval. Such an investigation has been consolidated for joint hearings with Continental's application for renewal of its San Antonio-Houston route which is used only for operation of a Houston-California interchange in conjunction with American Airlines.

Board also kept the record open for two months to permit National and Eastern to come up with a possible voluntary trans-Gulf interchange agreement. This was in lieu of Eastern's bid for a trans-Gulf route of its own for interchange purposes.

The five-man Board split widely on its ultimate decision. Before it were petitions of Braniff, Eastern, and TWA, for reconsideration of a previous denial of their three-way interchange bid.

Vice Chairman Harmar D. Denny was the only member voting for all phases of the final decision. Chairman Chan Gurney and member Oswald Ryan joined Denny in disapproving the three-way interchange but dissented with respect to the Braniff-TWA two-way proposal.

Members Josh Lee and Joseph P. Adams joined Denny in favoring the Braniff-TWA interchange but dissented from the majority's denial of the transcontinental service.

CAB MISCELLANY

Delta-C&S Air Lines applied for extension of its authority to serve Greenville-Spartanburg, S. C., which otherwise expires August 11.

Braniff Airways asked continued authority to suspend at Pueblo, Colo., urging "economic grounds" in support of its request.

Aerovias Venezolanas, S. A. (Avensa) applied for foreign air carrier permit to operate routes between Venezuela-Miami and Venezuela-New Orleans.

CAB NEWS

AS OF NOW . . .

With both Panagra and Braniff now agreeing "no purpose would be served" by further merger negotiations, CAB is expected to rule on interchange phases of the **New York-Balboa Through Service Case.** Board deferred such action on March 26, 1954, pending outcome of possible Panagra-Braniff merger.

The **Trans-Atlantic Cargo Case** is at the White House awaiting Presidential action on CAB's recommendations. A decision should be made soon. CAB staff and board examiner has recommended 5-year certification of Seaboard & Western Airlines.

Issues in the **New York-Mexico City Non-stop Case** have been defined by CAB with American, Eastern, and Pan American listed as applicants. American and Eastern will also be considered for Washington-Mexico City non-stop rights. Hearings may start in August if domestic and international political barriers don't interfere.

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RECENT CAB DECISIONS

Northeast Airlines' certificate to serve Rutland, Vt. extended beyond July 3, to October 1, 1954, at request of Rutland.

National Airlines compliance proceeding, arising out of former activities in connection with Aerovias Internacionales, S. A., terminated upon joint request of NAL and CAB Compliance Office.

Pacific Northern Airlines directed to show cause why annual mail pay should not be increased on temporary basis by $300,000 to total annual figure of $2,050,000.

Air Traffic Conference, ACTA, and **IMATA** agreements calling for 10% discount tenders to Department of Defense for carriage of military personnel during fiscal 1955 approved.

CAB CALENDAR

July 26—Hearing in Service to Fairmont and Fort Dodge Case (Braniff Airways). Washington, D. C. Docket 4052 et al.

July 27—Hearing in Trans-Texas Airways Certificate Renewal Case (Civic Intervenors). Houston, Texas. Docket 6485 et al.

July 27—Hearing in Southwest Airways Certificate Renewal Case. Tentative. Docket 6503 et al.

July 29—Oral argument before the Board in North Central Airlines Segment 5 Renewal Case. Washington, D. C. Docket 6432 et al.

Aug. 11—Hearing resumed in Trans-Texas Airways Certificate Renewal Case (Airline parties). Washington, D. C. 6485 et al.

Aug. 15—Hearing resumed in United Air Lines Mail Rate Case—Hawaiian Operations. Washington, D. C. Docket 2913.

Aug. 17—Hearing in Additional Service to Virginia Peninsula Case. Washington, D. C. Docket 4841 et al.

People

MANUFACTURING

Brig. Gen. Willis R. Slaughter, who resigned from the Army, June 30, has joined The W. L. Maxson Corp. as a technical advisor in systems applications and in long-range planning and evaluation of Maxson's military projects.

Dr. Harper Q. North has been named president of the recently established Pacific Semiconductors, Inc., a wholly owned subsidiary of The Ramo-Wooldridge Corp.

John M. Case has been appointed executive vice president of Fairchild Camera and Instrument Corp.

Paul H. Taylor has been elected a director and vice president in charge of the Research and Hydra Spring Divisions of the Wales-Strippit Corp.

Jack G. Allen, formerly vice president and general sales manager of the Bingham-Herbrand Corp., is now president, general manager, and a director of Artisan Metal Works Co.

John L. Hallet, formerly executive vice president of Kaiser Motors Corp., has been named vice president in charge of Kaiser's aircraft production.

Charles J. Daniels has joined All American Engineering Company as staff engineer, specializing in hydroski research and development.

C. I. Bradford has taken office as president of Rem-Cru Titanium, Inc., moving up from his former post as vice president and director of operations.

The Denison Engineering Co.'s new Aircraft Products Division has **Edwin L. Shaw** as chief; **Roland N. Crossley** as director of sales; and **James Parr** as chief engineer.

E. G. Ackerman is the newly elected president of McCauley Industrial Corp., business aircraft propeller manufacturers. Other recent changes at McCauley: **John F. Haines,** vice president and chief engineer, **Charles J. Schaffer,** secretary-treasurer.

Turner A. McMullen has been named vice president of the Bingham-Herbrand Corp., and general manager of the Herbrand and Aviation Divisions.

L. M. Henderson has been named manager of operations, and **H. R. Arnold** has been named manager of foreign relations and administrative assistant for the Aviation Gas Turbine Division of the Westinghouse Electric Corp.

Charles W. Sanford has been elected vice president-manufacturing and **John E. Ault, Jr.,** formerly of the Houdaille-Hershey Corp., has been elected comptroller of Jack & Heintz, Inc.

AIRLINES

Henry H. Berke has been elected vice president in charge of services of supply for Pan American World Airways, moving up from assistant vice president.

Basil Smallpeice's duties with British Overseas Airways Corp. were recently enlarged when he was named deputy chief executive which is in addition to his post as financial comptroller.

Sverre Marcussen has been appointed sales manager, and John

Your executive aircraft

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Its beauty is more than skin deep

Beautiful and luxurious, of course, but the most important part of a TEMCO custom conversion is hidden from the eye: the plane is completely *re-manufactured.* Each plane receives the special work that is indicated by inspection, but the extent of TEMCO re-manufacture is shown by this list of basic work on every job:

1 New control surfaces covering.
2 Swaged type new control cables.
3 Complete rewiring of primary and secondary electrical circuits.
4 Reskinning of dented panels and leading edges.
5 Compliance with all CAA AD notes and manufacturer's bulletins.
6 New tires and tubes.
7 Heavy gear suitable for 26,900 pounds.
8 Hydraulic compensator on gear (instead of rubber bungee).
9 Modification and reinforcement of rear drag strut attachment.
10 Cadmium plating of gear.
11 Removal of all non-essential material to reduce weight.
12 Installation of new rubber extruded seals on cabin windows.
13 Elimination of water leaks by sealing fuselage.
14 All new rubber hose gaskets and seals.
15 New cabin windows.

Basic plane, complete re-manufacture, radio and special installations, and custom interior — you get it all at one base, on one contract, at a fixed price.

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Californian

WESTERN AIRLINES DC-6B

Champagne Flight

BETWEEN CALIFORNIA AND THE PACIFIC NORTHWEST

Enjoy these extra luxuries at **no extra fare...**

- ★ **Sparkling Champagne** *(with Western's Compliments)*
- ★ **Filet mignon dinner**
- ★ **Orchids for the ladies**
- ★ **Reserved seats**
- ★ **Super-pressurized 4-engine DC-6B**



The Luxury Line of the Pacific Coast

Simons, agency and interline manager for Icelandic Airlines.

Toshio Kondo has been transferred from the San Francisco office of Japan Air Lines to New York as eastern traffic manager.

Ernest M. Yohn is Pan American World Airways' new plant maintenance superintendent at the airline's Miami Overhaul Base.

John T. Kreiger of Braniff Airways has been promoted from city sales manager to district sales manager in Dallas.

Recent shifts of United Air Lines' flight operations personnel at Denver headquarters finds: **I. E. Sommermeyer** as director of flying; **E. P. Lott**, assistant to the vice president of flight operations, concerned with methods and flight operations accounting; and **D. C. Lynch**, as administrative assistant to the vice president.

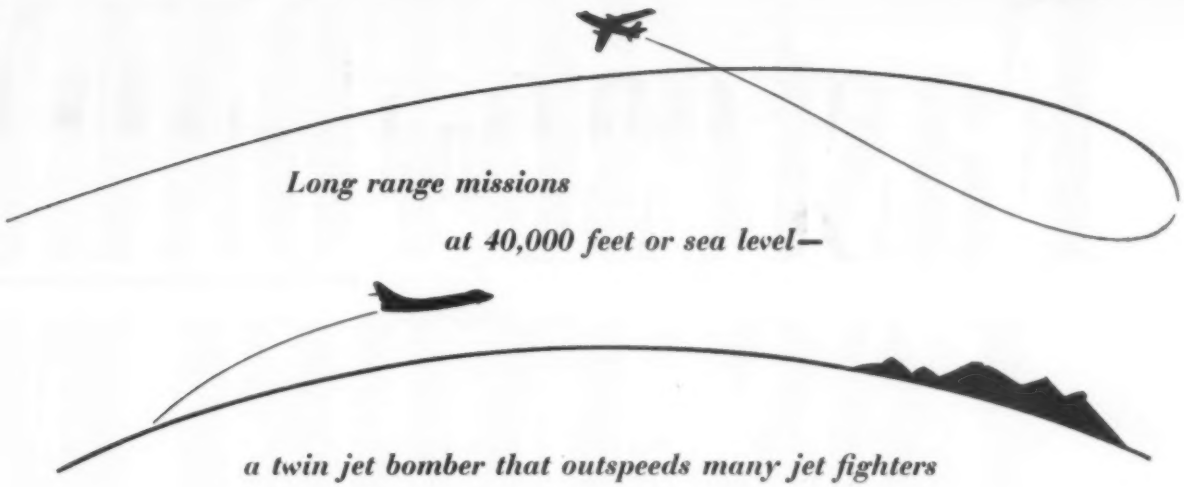
Frederick A. Quanjer has been named New York district manager for KLM Royal Dutch Airlines.

Joseph S. Sykes, formerly district sales manager for Northwest Airlines in Tokyo, has been appointed the line's manager of international sales.

A. Laurence Young has been named secretary of the International Air Transport Association, succeeding J. A. MacD. Henderson, resigned.



- **R. W. Dedecke,** United Air Lines. Maintenance base foreman, San Francisco. 25 years.
- **P. H. Williams,** United Air Lines. Flight dispatcher, Denver. 25 years.
- **Frank N. Fleming,** Douglas Aircraft Co. Chief project engineer on the X-3, Santa Monica. 25 years.
- **Frederick H. Mueller,** Parks College of St. Louis University, Instructor. East St. Louis. 27 years.
- **Henry F. Schnittger,** Parks College of St. Louis University, Superintendent of airport maintenance, East St. Louis. 27 years.
- **Earl Ray Horn,** Parks College of St. Louis University. Instructor, East St. Louis. 25 years.
- **Otto Plagens,** Boeing Airplane Co. Plant engineer, Wichita. 25 years.
- **Otis E. Kline, United Air Lines.** Vice president-coordinator of operations, Chicago. 25 years.
- **S. E. Weller,** United Air Lines. Inspector, San Francisco. 25 years.
- **C. S. Shaw,** Fairchild Aircraft. Paint sprayer, Hagerstown. 25 years.
- **L. H. Conrad,** Fairchild Aircraft. Inspector, mechanical operations, Hagerstown. 25 years.
- **O. L. Musselman,** Fairchild Aircraft. Leadman acetylene welding. Hagerstown. 25 years.
- **B. L. Stallings,** Fairchild Aircraft. Welder, maintenance. Hagerstown. 25 years.
- **D. W. Shaw,** Fairchild Aircraft. Wood model maker. Hagerstown. 25 years.
- **E. L. Buchanan, Jr.,** Fairchild Aircraft. Change control coordinator, Hagerstown. 25 years.



Long range missions

at 40,000 feet or sea level—

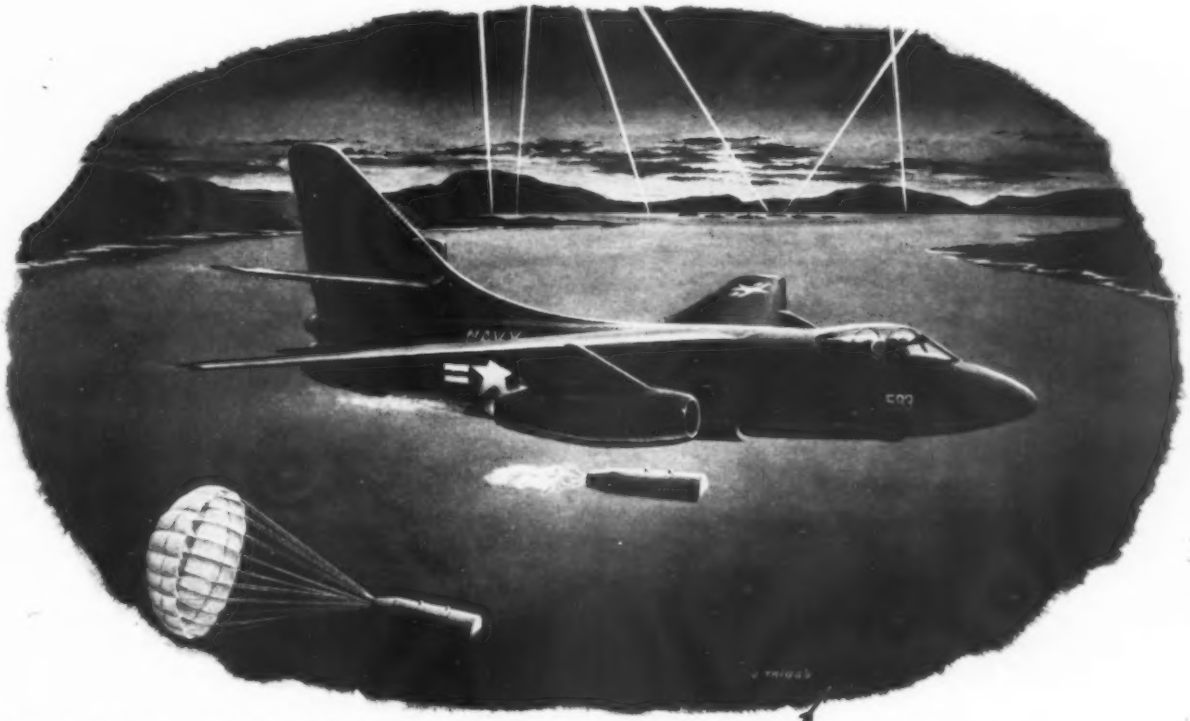
a twin jet bomber that outspeeds many jet fighters

—the U. S. Navy's Douglas A3D

Compact in design, outstanding for its work-weight ratio, the carrier-based twin jet A3D typifies a Douglas-led trend toward less complex combat aircraft.

Simplification, which gives A3D greater speed, range, and payload than any comparable bomber, also results in great versatility. The Douglas A3D can fly high-altitude attack missions or serve as a mine layer. Largest of all carrier-based aircraft, it can handle—in its internal bomb bay—the bulkiest bombs, torpedoes, or other naval munitions designated for carrier action.

Design of A3D is another example of Douglas leadership in aviation. Developing planes that can fly *faster and farther with a bigger payload* is a basic Douglas concept.



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Premium Service at no extra fare

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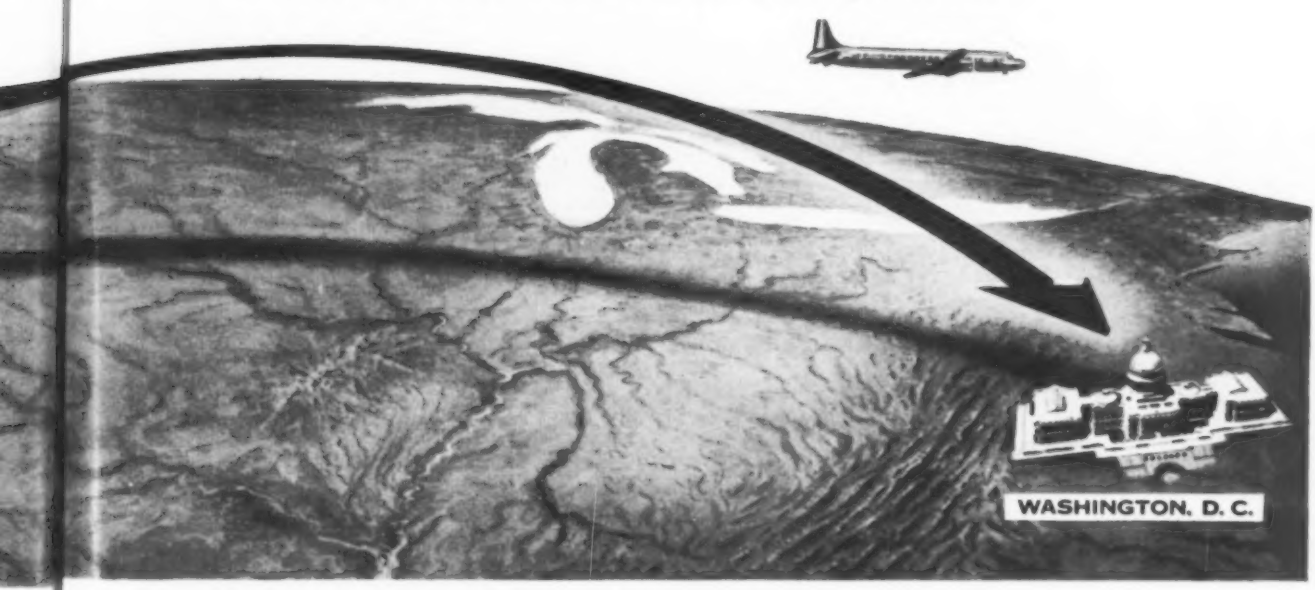
In keeping with its policy to provide the finest in air travel, American Airlines announces still another first in transportation history—the first nonstop service between Los Angeles and Washington, D. C.!

Like American's other nonstop services, this newest addition is made possible by the introduction of American's new DC-7—the first plane expressly designed for transcontinental travel. The DC-7 also offers other innovations which add immeasurably to your comfort and convenience.

• New type air conditioning operates while

NONSTOP
-WASHINGTON

—ANOTHER NEW AMERICAN DC·7 SERVICE



plane is on the ground as well as in flight.

• Four new "Turbo Compound" engines, which develop 13,000 horsepower, permit a cruising speed of 365 miles per hour while setting new coast-to-coast records.

And most important, this premium service is available at regular Flagship fares. In fact, mothers and children can enjoy it for less than the regular cost when traveling with fathers on family half-fare days—Mondays, Tuesdays, Wednesdays. Fly American's new Statesman—finest service between Washington, D. C. and Los Angeles!

AMERICAN AIRLINES INC.

America's Leading Airline

Maintenance Bulletin Board

CAA Approval Likely for Oil Additive

The Civil Aeronautics Administration powerplant engineering branch has taken a position of "no objection" to the use of Spotoil, a new aircraft engine oil additive claimed to produce lower engine oil temperatures and reduce oil consumption.

The CAA stand was adopted recently following a 990-hour Spotoil test in a Pratt & Whitney R-2800-75 engine installed in a C-46 airplane flown by Westair Transport, a large irregular carrier based in Seattle, Wash. Results of these tests showed that the Spotoil engine had an average oil consumption of only 1.038 gallons per hour, compared with 1.32 gph for a control engine used on the same airplane and 1.5 normally experienced on the R-2800-75.

These were the findings of George C. Prill, engineering consultant who analyzed and reported on the Westair test program after inspecting the engines during teardown at Slick Airways' San Antonio, Tex., shop. Prill is technical director of the Aircoach Transport Association.

CAA's "no objection" position, which is based partly on Prill's report and on its own inspection of the engines, is considered tantamount to approval. However, it limits use of the additive to Pratt & Whitney engines up to the R-2800 provided the dilution factor is held to within one part Spotoil to nine parts of regular oil, and provided it is not used with detergent-type oils.

CAA also said that it has no objection to service evaluation tests on any other engines used in airline operation. At least one of the scheduled trunk carriers is understood to have started such an evaluation in a Douglas DC-3 pilot trainer.

The basic additive, according to I. H. Mansfield, president of the Spotoil International Sales Corp., is a blend of highly refined, neutralized mineral oils compounded with certain concentrated derivatives of petroleum. It was developed by a Canadian chemist and World War I RCAF pilot in the late 1930's but was shelved during World War II because of petroleum rationing problems.

First real introduction into aircraft engines came in 1953 when the Aviation Corp. of Seattle, headed by Mansfield, acquired 50% of the formula and manufacturing rights, along with an international distributorship.

Advantages claimed for Spotoil:

- Reduced oil temperatures in the order of 10-15° C. Piston ring blow-by is reduced due to freer ring action and increased lubricant film strength.
- Lower oil consumption ranging from 33⅓% to 50%.
- Decreased lead and sludge deposits in the engine, propeller dome, and oil tank.
- Reduced pour point provides better cold-weather starting, reducing the need for engine oil dilution.

Big advantage, Mansfields says, lies in reduced engine maintenance, particularly the type resulting from sticking rings or valves. He explains, "We have never had a stuck ring or valve in any piece of equipment that has used Spotoil."

Another benefit claimed is an increase in engine torque horsepower. However, in analyzing the Westair tests, Prill found no definite indication of an effect on brake horsepower, but, instead, recommended that further testing under more closely controlled conditions be conducted preferably on an engine equipped with torque meters.

Here's how Mansfield estimates the dollar savings Spotoil will bring to one engine normally consuming 1.5 gallons of oil an hour over a 1000-hour run:

Oil Cost—1500 gals. @ 50¢	**$750**
Reduced ⅓ by Spotoil savings:	
1000 gals. @ 50¢	**$500**
Spotoil 100 gals. @ $1.50 ..	**150**
Revised Cost	**$650**
Net saving per 1000 engine hours	**$100**

Spotoil International Sales Corp. is located at Washington National Airport, Washington, D. C.

New Horizontal Prop Balancer Enthuses NWA

A new aircraft propeller balancing rig recently procured by Northwest Orient Airlines not only offers an initial cost saving, but also promises repeated man-hour savings and increased safety of operation, according to NWA officials.

After four months of operation with the new device, NWA propeller shop supervisor J. Schuster judges it one of the finest pieces of equipment he's ever had in the shop.

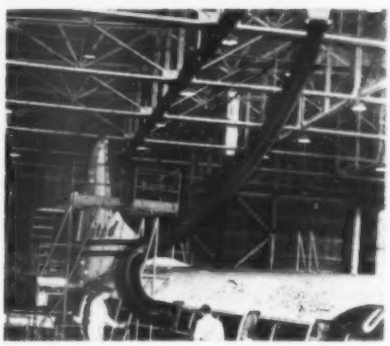
The unit is a horizontal, suspension-type design called the Marvel aircraft propeller balancer, built by the Marvel Manufacturing Co. of Caldwell, N. J. Its advantage over previous balancing rigs, Schuster says, is that it can be brought to the propeller, whereas in the past, the propeller had to be moved to the balancing pit.



This feature alone will save four man-hours for each propeller overhaul. In addition, NWA feels it will increase the employee safety factor and lessen the possibility of shop damage to propellers.

Propellers can be adjusted minutely in a single operation on the horizontal balancer. They often had to be removed, rebalanced and retested on the vertical balancer. Furthermore, Schuster says, drafts and vibrations do not affect the propeller on the horizontal balancer to the extent they do on vertical equipment.

Paint Fume Exhaust



United Air Lines' solution to the problem of exhausting paint fumes from aircraft cabins during overhaul operations is a 25-foot length of flexible hose from a cabin window to large suction fans on the roof of its San Francisco base.

Hose selected by UAL is the Flexaust CWCIX type, made from neoprene-impregnated cotton drill reinforced with imbedded spiral wire. The hose weighs only four pounds per foot and is produced by The Flexaust Co., 100 Park Ave., New York City.



the man from Esso...
the airline representative

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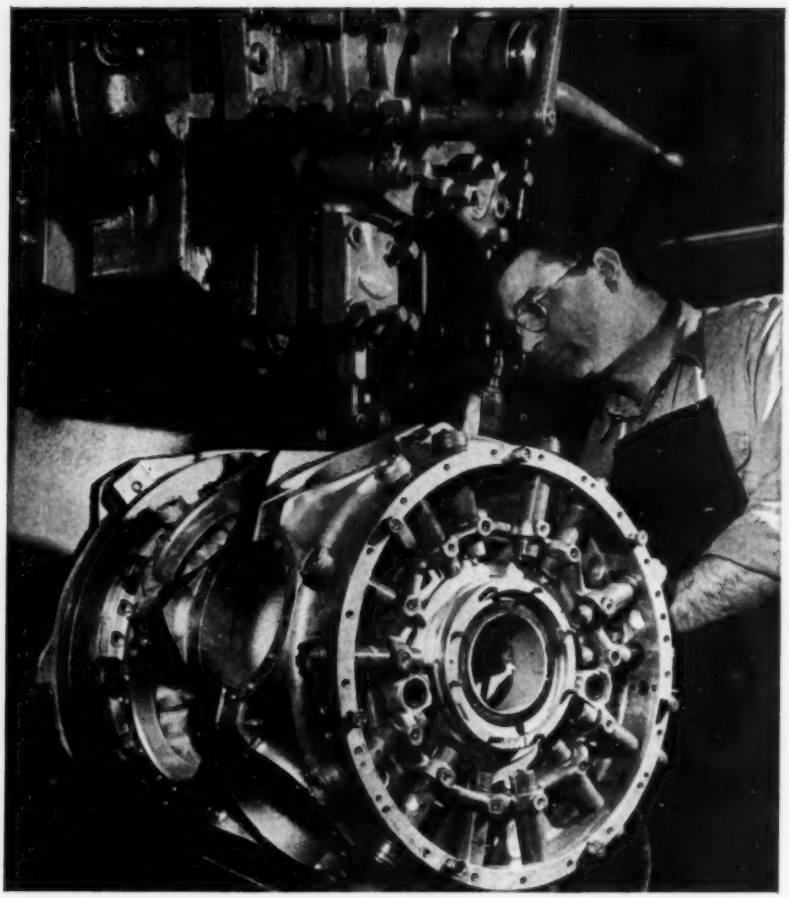
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New Products

New Test Units Aid Fuel System Checks

Simmonds Aerocessories, Inc., of Tarrytown, N. Y. has introduced three new portable test units to assist aircraft mechanics in checking and servicing all types of capacitance fuel gage systems.

The new Simmonds equipment includes:



• **Line Maintenance Unit**—Combines functions of four separate devices previously used for fuel gage testing. Identified as Kit No. 387002, it can be used for initial system adjustment as well as trouble shooting during routine line maintenance. Major components of kit are a capacitance bridge and capacitance decade, and insulation resistance for checking both the two- and three-wire types of gage systems. It can also be used to measure capacitance of a single tank unit or the total tank circuit capacitance.

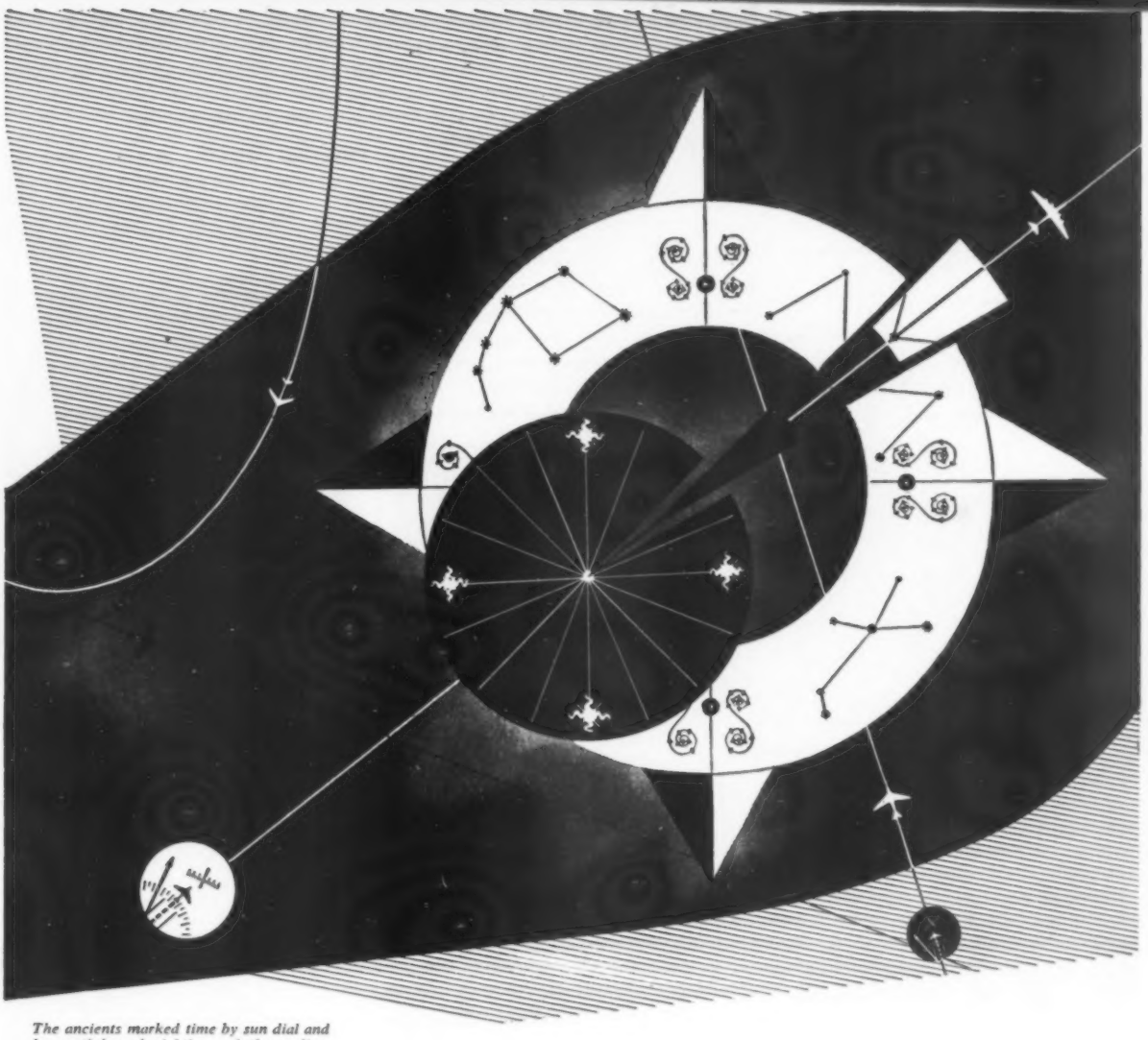
• **Capacitance Standards Kit**—Part No. 387009 provides a series of three-wire capacitance standards for checking calibration accuracy of three-wire capacitance gages.

• **Dielectric Constant Tester**—Part No. 387005 gives a direct reading of the dielectric constant of aircraft fuel. A probe provided with the unit can either be inserted into the fuel tank, or the check can be made with a small fuel sample.

Address. **Simmonds Aerocessories, Inc., Field Service Division,** Dept. AAP, Tarrytown, N. Y.

Power Supply. New heavy-duty a-c to d-c regulated power supplies for production line, pre-flight, or laboratory testing of electronic equipment feature magnetic amplifier voltage regulators for wear-free operation.

Units are designed for use on 220-440 volt a-c input and are available in any desired output voltages and current capacities. Voltage is maintained within + or — 1% from no load to full load with



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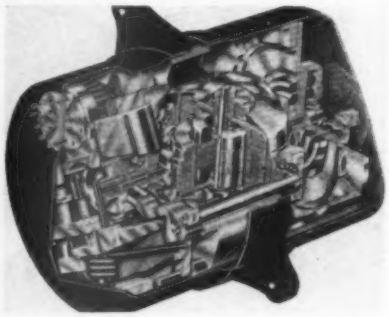
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For complete information on TECO hi-density, luxury, folding, reversible and berthable seats, and TECO's new light weight upper berth—write: Engineering Dept., 2501 No. Ontario Street, Burbank, Calif.

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line voltage fluctuations as high as + or — 10%. Each unit employs a dry-type full-wave selenium rectifier. Address: **Hufford Machine Works, Inc., Electronics Division,** Dept. AAP, 2201 Carmelina Ave., Los Angeles 64, Calif.

Missile Gyro. Already slated for installation in one ground-to-air and another air-to-air guided missile, the new Model 221 airborne reference gyro accelerates to operational control speeds in 10 seconds.



This compares with conventional gyro performance of 35 to 60 seconds in achieving control speed, according to its manufacturer.

The model 221 weighs 4¾ pounds and is available with either a 28-volt d-c or 115-volt, 400-cycle single- or three-phase power supply. Maximum drift in either the a-c or d-c units is reported to be 0.1° per minute or less. Address: **Summers Gyroscope Co.,** Dept. AAP, 2328 Broadway, Santa Monica, Calif.

Pneumatic C-Clamp. A new air-actuated C-clamp, said to have increased production on bench and tool work by more than 25% during three years of



testing by major airframe manufacturers, operates from an air-line pressure of 100 psi.

A development of the Kajon Manufacturing Co. of El Segundo, Calif., the new clamp is produced in a single standard size with an opening of 6 inches, a

nose for trouble



The big black nose of the CF-100—and what's inside it—is truly a mark of distinction. For it identifies the all-weather interceptor from the day fighter and, in the case of the CF-100, as Canada's Aerial Defender against bomber attack across the North.

The "insides", a complex mass of radar and electronic equipment—is designed to guide the CF-100 Mk. 4 unerringly to its target, lock on and destroy it with a formidable armament combination of rockets and guns. The effectiveness of this search and fire-control system is being demonstrated almost nightly during mock interception exercises by R.C.A.F. CF-100 squadrons based at strategic points. With its twin Orendas, also designed and produced by AVRO Canada, the CF-100 Mk. 4 has a greater range and more power than any other fighter-interceptor in service anywhere. The Orenda also powers the Canadair Sabre 5, the outstanding day fighter in service today.

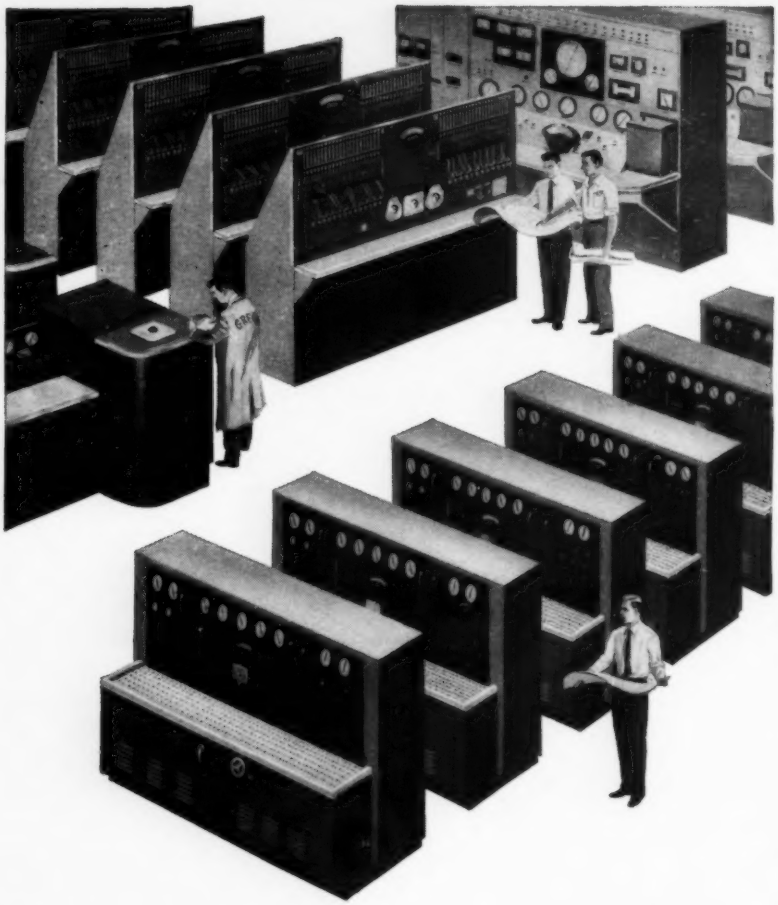
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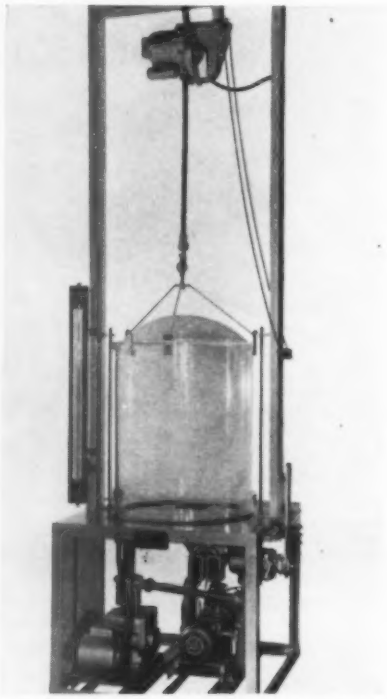
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3-inch throat, and a 2-inch plunger travel. Features of the clamp are a self-adjusting head which reduces the possibility of damaging work, a simple and quick means of connection, and a lever valve to control its release and gripping action.

Address: **The Burklyn Co.**, Dept. AAP, 3429 Glendale Blvd., Los Angeles, Calif.

Vacuum Chamber. Observation of equipment at all times while undergoing tests is possible in a new vacuum chamber capable of simulating altitudes up to 100,000 feet.



Working space in the test jar measures 24" in height and 24" in diameter, and operational features include a simulated rate-of-climb of 32,000 feet-per-minute up to 60,000 feet altitude. Address: **American Research Corp.**, Dept. AAP, 11 Brook St., Bristol, Conn.

Air Brake Valve. A new emergency brake valve designed for use in aircraft pneumatic systems will receive inlet pressures up to 3000 psi and provide outlet pressures in the range from 0 to 800 psi.



The new valve is available in a single-barrel model (No. 105G500) which is brake-pedal operated, or a double-barrel



HAMILTON STANDARD . . . leader for years in propeller design and production, is supplying other equipment for such outstanding new jet aircraft as the Air Force's Convair F-102, interceptor-fighter.

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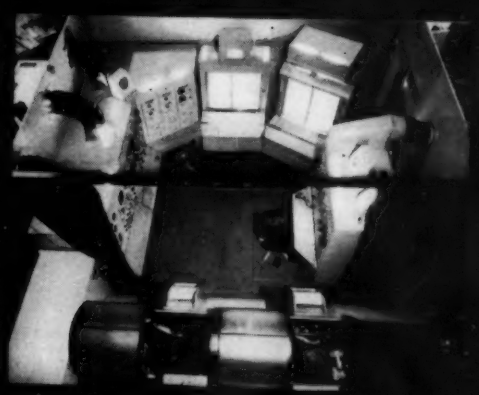
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model (No. 105G200) for hand operation. One feature of the new unit is a design provision which allows controllable deceleration and eliminates locking of brakes. Address: **The Cornelius Co.**, Dept. AAP, 555 39th Ave. N. E., Minneapolis 21, Minn.

Submerged Fuel Pump. New centrifugal-type aircraft fuel pump for submerged installations weighs only four pounds, can be used with either aviation gasoline or JP-4 jet fuel, and maintains bubble-free flow from the fuel tank to the engine.



Known as the model RG-11260, the new pump will supply 19 to 20 psi pressures at 200 gallon-per-hour flow, and 20 to 21 psi at 100 gph. Design capacity is based on an aircraft rate of climb of 2000 feet per minute. Address: **Lear, Inc.**, Lear-Romec Division, Dept. AAP, Elyria, Ohio.

Technical Literature

TITANIUM TUBING. Bulletin No. 42 gives details on properties, applications, and advantages of titanium tubing, as manufactured by the Superior Tube Co., 1504 Germantown Ave., Norristown, Pa. Listings of tube sizes are included.

DIODES AND TRANSISTORS. Radio Receptor Co., of 251 W. 19th St., New York, has prepared Bulletin No. G-23 for engineers working with electronic circuits, to describe its complete RR„ line of Germanium Diodes and Germanium Transistors. Charts, voltage curves and diagrams, and product applications lists are included.

ALCOA IMPACTS. New 16-page booklet, titled "Alcoa Impact Fact Book", has been published by the Aluminum Co. of America, 724 Alcoa Bldg., Pittsburgh 19, Penna. It covers facts pertaining to the design of products as impact extrusions.

VERTICAL GYRO. Lear, Inc., 3171 S. Bundy Dr., Los Angeles 34, has a 14-page brochure prepared which presents details of its vertical gyro indicator system, an automatic pitch-bank altitude indicator for high-performance aircraft.

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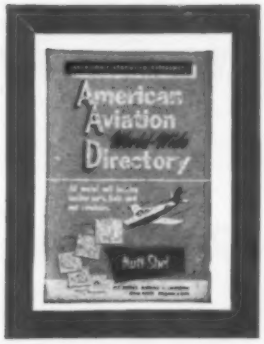
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Fall-Winter **1954** Issue: Closing Date, August 1

Advertising Offices: American Aviation Publications
LaGuardia Airport, N.Y.C.

INTERNATIONAL AVIATION

Edited by Anthony Vandyk



HD 32 Moving Into Production



HD 32 is in foreground; prototype HD 31 is behind.

The "DC-3 replacement" situation in Europe is gloomy. Only the Hurel-Dubois HD 32 is moving into the production stage. The British programs heralded at last year's Farnborough show now appear to be virtually moribund. Handley Page alone is active (with its four-engine HPR3) but the prototype stage is a long way off. The Percival P.87 high-wing pusher-propeller project has been shelved while English Electric has dropped its design featuring a Double Mamba turboprop powerplant. In the Netherlands the Fokker F.27 is moving along but the prototype won't be flying until next spring.

Widely varying customer requirements, lack of government support and general apathy prevail in Britain. In France and the Netherlands the HD 32 and the F.27 are being backed by the government as well as by the national carrier. The HD 32 will go into large-scale production (probably at Breguet's Villacoublay plant since the Hurel-Dubois factory is essentially a prototype plant). Backbone for HD 32 production will be a military order for about 140 HD 32 variants. First planes off the line will be Air France's 24: tentative schedule calls for delivery of four before June 1956 and the last at the beginning of 1957. The French National Geographic Institute has signed a letter of intent for four HD 32's with an option on a further 30.

As a result of experience with the HD 31 and the first HD 32 (which has now accumulated some 50 hours' flying) several changes to the design have been decided upon. Most important is the experimental substitution of a single tail for the twin unit. Others, already incorporated, include the fitting of airbrakes to the airfoil struts linking the engines to the stub wings, and installation of a new spoiler system.

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INTERCOM

THERE are plenty of bargains around for the air traveler who is prepared to sacrifice a little time to save some money. Perhaps the best known of the cut-price operators is Loftleidir Icelandic Airlines which charges $270 for the one-way New York-Copenhagen trip against the IATA tourist fare of $328.10. Generally the penalty for the lower fare is that unpressurized equipment is used and more stops are made. The latter is not necessarily a disadvantage. In fact, the "colonial coach" services operated between England and British territories in Africa attract passengers who like to do a little sightseeing en route. Overnight accommodations and all meals are included in the fares.

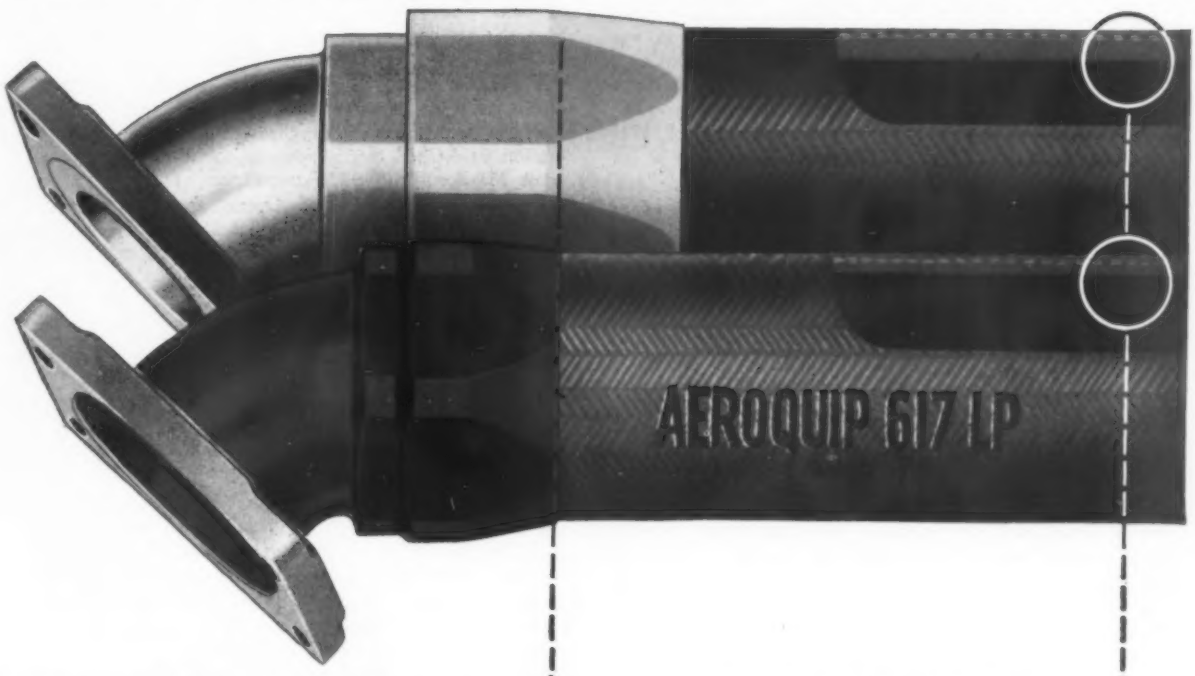
The latest "colonial coach" service operated by Airwork Ltd. and Hunting-Clan Air Transport is from London to Accra, West Africa, with night stops at Tangier and Dakar. The London-Accra fare by this service is $224 against the BOAC tourist rate of $263.20. Most "colonial coach" flights are operated with 27-seat Vickers Vikings which, not having high-density layouts, are more comfortable than many tourist versions of larger aircraft.

In other parts of the world, cut-price international operators tend to favor C-46 and DC-4 equipment. Civil Air Transport, the outstandingly successful Far Eastern airline, operates both these types along with DC-3's, and does not use high-density layouts. CAT will fly you from Bangkok to Tokyo for $198 against the IATA tourist fare of $224.

Perhaps the biggest international fare bargains of all are available between the U. S. and Latin America for the passenger who is not too fussy about what carrier he uses. Transportes Aereos' Nacionales of Honduras, for instance, now offers through service from Miami to Lima, Peru, at a fare of $186 against the IATA tourist rate of $253. For $138 it will take you from Miami to Guayaquil, Ecuador, at a saving of $49 on the IATA tourist fare. That beats even the Ecuadorian flag carrier Aerovias Ecuatorianas which charges $150 for the trip (in Boeing 307 Stratoliners).

Save up to 150 lbs. per Plane!

with Aeroquip 617 Lightweight Air Frame Hose



THE FITTINGS WEIGH LESS!

Extremely short socket design uses less metal . . . saves the difference in weight.

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Thin wall construction and less wire braid hold weight to a minimum.

Tests *prove* the savings in weight where Aeroquip 617 lightweight air frame hose replaces conventional types for fuel and oil lines. On one fighter plane, weight was reduced 35 pounds . . . on bombers, as much as 150 pounds can be saved with no sacrifice in performance.

Aeroquip 617 hose has been tested, approved and accepted for 125 P.S.I. operation. The Buna inner tube is resistant to synthetic lubricating oils made to specification MIL-L-7808 as well as petroleum products. Aluminum fittings are detachable and reusable.

617 hose and fittings are available from stock with AN756 flanges and standard AN818 swivel nuts in straight, 45° and 90° elbows. Sizes are —16, —20, —24, and —32.

This is another "Aeroquip first" featuring hose and fittings matched for guaranteed performance. Write for Aircraft Engineering Bulletin AEB-2.

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INTERNATIONAL AVIATION

MANUFACTURING

FRANCE: The second Dassault Mystere IVB prototype started its flight test program on June 18. Powerplant is a Rolls-Royce Avon with afterburner. The prototype Mystere IVN night fighter is now ready to fly.

First production military version Holste MH 1521 light transport made its initial flight on June 24. It is the first of a batch of 17.

SNCA du Sud-Ouest made a profit equivalent to $520,000 in 1953. SNCA du Nord's profit for year was about $200,000.

BRITAIN: The Bristol Aeroplane Co. is developing a ducted-fan engine using certain Olympus components.

The Viper-powered Percival Jet Provost trainer made its first flight on June 26.

The de Havilland DH 110 all-weather fighter has started flight trials with an all-moving tail plane. It flew supersonically on its second flight.

Saunders-Roe is carrying out hydroski tests with an adapted Auster.

AUSTRALIA: First Sabrejet from Commonwealth Aircraft Corp.'s production line is ready for flight testing. Twelve should be delivered to the RAAF by the end of the year.

ITALY: Development of the Augusta AZ 1 twin-turboprop transport is to be sponsored by the Italian government. Design is still in the blueprint stage.

MILITARY

SYRIA: Three Gloster Meteors have been delivered to the Syrian Air Force as the first batch of an unspecified number of British military jet aircraft.

AUSTRALIA: The Royal Australian Navy has received its first jet aircraft—a Vampire trainer, the first of five being built by de Havilland in Australia. They will be used for jet familiarization pending the arrival of Sea Venoms next year.

DENMARK: The Danish Air Force has decided to negotiate with Hawker Aircraft Ltd. for the supply of 30 Hunters. Delivery would be in late 1955 or early 1956.

SPAIN: Thirty additional Lockheed T-33 trainers for the Spanish Air Force and three Bell 47 helicopters for the Spanish Navy were delivered recently.

CANADA: RCAF participation in the Korean airlift has ended as a result of the reduction of USAF facilities at Shemya. Unavailability of Shemya prevents economic operation of RCAF North Stars to the Orient, National Defense Minister Brooke Claxton explained.

GREECE/TURKEY: The Greek and Turkish NATO forces are to receive about 150 Canadair-built F-86E fighters made surplus by deliveries of later model Sabrejets to RCAF units in Europe.

AIRLINES

FINLAND: Aero O/Y has temporarily lost its fifth freedom rights between Copenhagen and Paris and has suspended operations to the French capital.

BRITAIN: Hunting-Clan and Airwork, independent operators, have started carrying mail on their joint coach service between London and West Africa under a contract sublet from BOAC.

FRANCE: Air France has taken delivery of the 10th of its 12 Breguet Deux Ponts heavy transports.

NORWAY: Wideroes, independent operator, recently received a DH Otter to replace the one which was damaged at sea en route. The second plane was flown from Canada.

CANADA: Okanagan Airways is considering starting commercial helicopter operations between Terrace, Prince Rupert, and Kitimat in British Columbia using S-55 and later S-56 equipment.

SCANDINAVIA: SAS is modifying the P&W R-2800 CB15 engines in its DC-6 fleet to CB17 standard. This will result in the DC-6's and DC-6B's having standardized powerplants.

SOVIET UNION: Direct service between Paris and Moscow via Prague will result from an agreement signed between Aeroflot and Air France during the visit of the latter's chairman and president, Max Hymans, to Moscow last month. Air France will resume its Paris-Prague service which will connect with the Aeroflot Moscow-Prague route.



Latest Version of Britain's Auster army liaison plane, the AOP9, is generally similar to earlier models but is higher powered and its structure embodies modern methods, including Redux bonding of stressed skin parts.

and now PACITRON* for the Viscounts

Capital Airlines is making news with its recently ordered fleet of made-in-Britain Vickers Viscounts. Later this year, Trans-Canada Air Lines will put into service its fleet of Viscounts—the first turboprop transports to go into commercial operation in North America. Both airlines have specified Simmonds Pacitron Fuel Gage Systems for their Viscounts.

In addition to the ultimate in accurate, reliable gaging of available fuel, the Pacitron installation on the Viscount includes gaging of the water methanol system, as well as provision for load limit control (i.e. automatic control of fuel taken aboard in accordance with flight plan requirements.) In specifying Pacitron for their Viscounts, Trans-Canada and Capital are not only selecting the best available fuel gage systems, both airlines are also confirming their satisfactory experience with prior Simmonds fuel gage installations.

In sum, Pacitron for the Viscounts is further evidence of the reason why Simmonds fuel gages today are flying on more than 70 types of aircraft and with more than 30 U.S. and foreign flag airlines.

NOTE: Airline executives and engineers are invited to write for the newly published brochure "Fuel Gaging for Transport Aircraft".

*Pacitron is a U. S. trademark



The Extra Engineer—When Pacitron fuel gage system provides fuel management as well as fuel measurement.

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WAYNE W. PARRISH

Galicia. No matter where you go in Spain you're confronted with a panorama of history.

But for something really different, let me recommend the provinces of Asturias and Galicia in the far northwest corner of the peninsula. Except for one or two spots, this area is off the beaten tourist routes. You won't find many museums and important monuments, but you'll be transplanted into an earlier era, and you'll discover some of the most entrancing scenic views to be found in Europe.

But I warn you, it's rugged. They play a game with the tourist called "Control of the Road." This game started two or three thousand years ago. The Galicians have all the chips, so watch out.

It all started in prehistoric days when some folk of unknown origin inhabited the mountains in the northwest. Then a thousand years before Christ some blonde blue-eyed Celts migrated from the British Isles and took a shine to the place and just settled for good. They must have been rugged people because when the Romans conquered Spain back around 100 A.D. the conquest was pretty well completed except for the mountain areas in the northwest. The Romans never did make the grade up there.

Vandals and Visigoths. In the 5th Century came the Vandals, a Germanic nation which swept down over France and Iberia, and out went the last of the then languishing Romans. In another hundred years the Visigoths, also Germanic, came down from the north and out went the Vandals down to Africa. All this time these Celtic descendants kept control of the northwest.

By 713 the Moors had swept up from Africa and ruled all of Spain—except the northwest. And in some 700 years of Moorish domination those Moslems never made the mountain people knuckle down. In fact it was in the northwest mountains of Asturias that the big drive began to oust the Moors and push them back into Africa, and that drive came to a successful climax in 1492—the same year Columbus discovered America—when Isabella and Ferdinand captured Granada, last Moorish stronghold in Spain.

Ever since 1492 the Spanish have been having their own internal battles although Napoleon, among others, tried to take over the country and fell flat on his face. And now in this decade comes the American tourist invasion and if you think it's going to be successful, think again.

The Innocent Motorist. The unsuspecting motorist arrives up there quite innocently. He's laid out his plans by the road maps and set his goals for overnight stops. But he has planned without a handicap. That game they play, "Control of the Road," is the most pixyish, devilish game under the sun today.

You see, most of Spain consists of wide open spaces and the people are huddled in villages and towns. Virtually no individual farms. But not so in the northwest. Not only are there lots of individual farms, but the national highways are, in fact, streets, and the habitations are almost continuous along some of these highways.

If you think the national highways are for the use of motorists, you're nuts. The highways are obstacle courses and are for the use, primarily, of oxen and burros, followed by children, people, chickens, pigs, cows, horses, ducks, dogs, just to name a few. They are for people to stand on to visit and pass the time of day. Children use them for playing games. Dogs use them to sleep on. Houses are usually built right up to the edge of the pavement. Naturally there are no sidewalks. In short, the national highways of Asturias and Galicia are the damnedest conglomeration of things in the world.

Blow That Horn. I used to have a reputation of blowing my car horn more than necessary. I used to think the French and the Cubans and Mexicans were pretty good at blowing their horns. Sure, I like to blow the horn, but there's such a thing as saturation. I had to blow my car horn continuously for mere survival, up to the point that I never wanted to hear that noise again.

Those people of Asturias and Galicia have held those roads against the Romans, the Vandals, the Visigoths, the Moors, the French and gosh knows who else. They just ain't about to give them up for American or any other kind of tourist. Believe me, it's a battle mile after mile in some areas and you blow your horn long and loud and those folk just don't care about moving. And you can imagine the ox carts and burros, they just like the middle of the road and so what can you do about it?

If you make 25 miles an hour on some of those roads you're doing well. Sometimes it's funny, other times it's frustrating. Once in awhile you actually buck some motor traffic, a truck or a car, but the biggest handicap is the team of oxen plugging along pulling a cart, or a flock of sheep blocking the road, or a burro pulling a cart down the middle of the road with the master fast asleep under a blanket.

Few Cars. In 1952 when the U.S. had 43,810,000 motor vehicles in use, Spain had 175,800, of which only 81,863 were passenger cars. This came to one vehicle for every 2.9 persons in the U.S., and one for every 160 persons in Spain.

In the U.S. we average 16 vehicles for every mile of highway but in Spain there are only 2.6 vehicles for each highway mile. Since the bulk of Spanish vehicles are concentrated in cities, chiefly Madrid and Barcelona, the motor vehicle is a little scarce in the rural areas. Private ownership of passenger cars is virtually impossible, except in the upper brackets. So if you do any traveling off the beaten track you don't compete with motor traffic, you just fight off the oxen and burros.

I'll give you one illustration which I think will impress you. The sale of gasoline is a government monopoly. The ordinary *gasolena* is pretty awful and will ruin a good automobile engine in short order. But the government sells a high-test variety which it calls Plomo, so your motor trip is geared to distances between Plomo pumps.

Only One Pump. The capital of Asturias is Oviedo, a city of over 90,000. One of Galicia's important cities is Vigo, about 100,000. Believe it or not, there is exactly one Plomo pump in each of those cities. In Oviedo the sole Plomo pump (hand-operated) is on the curbstone at the main intersection of town. Not even a canvas over it. The traffic cop stops the horses and wagons and trucks to let you back up to the pump. Pedestrians stream by, many of them smoking. If it rains, you just get wet. If the attendant isn't around, you've had it. With one pump for a town of 90,000, you can understand that there aren't many cars in Asturias.

In two other towns I had to get help to find the Plomo pump. In Vigo the American consul lent his messenger to direct me out one road to the sole Plomo pump so I could line up with the trucks to get some gas. In La Coruna, an attractive port city on the west coast, the local director of tourism, who welcomed the chance to speak his first meager English in eight months and who disliked riding in automobiles because he got car sick, went to great effort to locate the sole Plomo pump available. The main travel arteries in Spain, especially around Madrid, have more gas pumps, but it's scarce as soon as you get off the beaten track. A U.S.-type gas station is completely unknown.

Surprises and Scenery. Asturias is full of surprises. I remember going around a curve along the Bay of Biscay and suddenly coming into a little fishing town of Luarca, an enchanting, spectacular symphonic view of grey and white. There was a heavy surf, the neat little church and cemetery on the point, the little port, and an unusually clean little town with grey and white houses. Quite unlike Spain, but truly an artist's paradise.

Then there were the very rugged hills, or small mountains, highly cultivated with terraced farming, simply beautiful, lush country, east of La Coruna in Galicia. There is no railroad along the northern coast which is unfortunate because the rest of Spain could use the bountiful crops that can be grown in this one area of ample rainfall.

News at Deadline

AF Seeks Lower Prices, Tighter Contracts

Attempts by the Air Force to obtain lower prices from contractors are indicated by new instructions on forward purchasing policies. The directions, issued under the title, "Tightening the Terms and Conditions of New Contracts," request negotiating personnel to emphasize price, delivery, and quality. They are also directed to see that obligations of contractors are clearly stated and enforced.

Letter contracts are discouraged, and procurement earlier than necessary is only to be allowed when consolidation of orders will bring savings or to maintain a production line.

Six Firms May Enter Jet Tanker Bids

The USAF's jet tanker competition is due to receive entries about September 1. Interested companies are reported to include Boeing, Convair, Lockheed, Douglas, and possibly Martin and Fairchild. Some contenders are understood to be concerned that Boeing's 707 may already have won significant Air Force support.

The competition was occasioned by a request from Gen. Curtis LeMay, commander of the Strategic Air Command, for a new high-speed, high-altitude tanker for his Boeing B-47's and B-52's.

Joint Radar Control Operation Announced

Joint CAA-U. S. Air Force operation of radar approach control centers at 18 military bases in the U. S. to serve both civil and military air traffic has been announced by CAA Administrator Fred B. Lee.

Under the new plan, CAA will operate the surveillance radar for approach control of all traffic and USAF will man precision approach radar for landing military aircraft under IFR conditions.

Centers affected by the project are MacDill AFB, Fla.; Kirtland AFB, New Mex.; Barksdale AFB, La.; Hunter AFB, Ga.; Biggs, Connally, and Bergstrom AFB, Tex.; Fairchild AFB, Wash.; Great Falls AFB, Mont.; Ladd AFB, Alaska; Brookley and Maxwell AFB, Ala.; Hill AFB, Utah; Wichita AFB, Kan.; Stewart AFB, N. Y.; and Davis-Monthan AFB, Ariz.

Comet Failure Blamed On Metal Fatigue

Reported failure of a Comet fuselage while being fatigue tested at the Royal Aircraft Establishment, Farnborough, puts a new angle on the investigation of the jetliner crashes. A Farnborough expert has been quoted as ascribing the fuselage failure to metal fatigue. Previously it had been thought that too-rapid refueling was the prime cause of the crashes. Double speed refueling (as used at Rome) can result in several serious effects due to pressure build-up.

Sayen Says ALPA Will Confer on Strike

Unless Air Line Pilots Association calls off its scheduled July 15 system-wide strike against American Airlines, the company will "take all steps open to us to hold accountable both the union and you personally for all consequent damage by strike or libelous statements," C. R. Smith, AA president, said in a wire to C. N. Sayen, head of ALPA. Smith set midnight July 12 as the deadline for calling off the strike, but as of that time ALPA had taken no action.

Sayen told Smith that ALPA "cannot be intimidated from pursuing our legal remedies against the arbitraries . . . action of Americans . . . in changing an historic (8-hour) rule and working conditions and forcing pilots to accept this change under threat of discharge . . . If Americans will abandon its arbitrary action and withdraw its threat . . . we will be more than glad to withdraw from our position and confer with you on this dispute." (See earlier story, page 20.)

Compromise Averts Mohawk Pilot Strike

A last-minute settlement averted a strike of Mohawk Airline's pilots, which had been scheduled for midnight July 12. Although there was agreement on pay scale, the company and Airline Pilots Association had been unable to settle on length of a new contract, Mohawk asking 15 months, ALPA 13 months. Issue was compromised at 14 months. Pilots will receive $34 more per month, co-pilots' increases range from $7.50 to $27.50, all retroactive to February 1, 1954. New contract runs from July 1, 1954 to September 1, 1955.

20,000 AFL-Machinists Casting Strike Votes

Twenty thousand mechanical and related workers on six airlines have been asked by the AFL-Machinists executive board to authorize simultaneous strikes because of the carriers' alleged refusal to bargain collectively on new contracts.

Airlines involved are Eastern, United, Capital, Northwest, National, and TWA. Balloting will take place between July 15 and 28.

Allen Resigns P. O. Transportation Post

John C. Allen has resigned as Assistant Postmaster General—Transportation, effective August 1. The resignation, which President Eisenhower accepted with "real reluctance," was due to "unexpected personal problems." Allen, who supervised all airmail matters, will return to Sears-Roebuck where he was Traffic Manager.

June Is Deadline for Anti-Collision Lights

CAB has amended Civil Air Regulations to require that all aircraft grossing more than 12,500 pounds be equipped with anti-collision lights by June 1, 1956. The Board is studying a similar requirement for small planes.

The new ruling affects CAR parts 40, 41, 42, and 43. In amending part 43, CAB provides that in event of light failure enroute, aircraft may continue to the next stop where repair or replacement can be made without undue delay.

Service to Denver Is Adequate, UAL Says

United Air Lines is now giving Denver adequate air service and entry of other airlines into the city would weaken UAL's ability to serve the smaller communities on its system, W. A. Patterson, UAL president, testified in CAB's Denver Service Case last week.

On the other hand, he claimed that Kansas City has been "neglected" by TWA and that the city will "benefit from competition" if UAL is certificated to serve that point. TWA hasn't "fulfilled its moral obligation" in the areas it serves, yet wants to go into other territories, such as Denver, he added.

Johnson Says Airlines Need to Discuss Fares

Domestic airlines have asked CAB for permission to hold unrestricted discussions on ways to increase revenues, including possible fare boosts.

CAB on June 10 ruled that the carriers had failed to prove the need for fare increases. It approved limited discussions of possible means of increasing revenues, but said that talks on fares were banned. Several such limited meetings have since been held by the airlines.

In asking the Board to reconsider its restrictions, Earl D. Johnson, President of Air Transport Association, said "the authorized discussions are so severely restricted in scope as to greatly impair their value."

SAC Grounds F-84F's; Navy Lets Demons Fly

One grounded military airplane resumed flying last week as another was removed from service by Strategic Air Command following a crash. McDonnell's F3H Demon, grounded by the Navy some months ago, was to resume fly tests at St. Louis. Company officials said that despite troubles with the engine "Westinghouse J40," the Navy is still planning to take delivery of about 60 J40-Howard Demons before changeover to the Allison J71 is made early next year.

FAC ordered investigative groundings of its Republic F-84F's following an accident at Kansas City. Plane was built at the second-source General Motors Kansas City plant. A Republic spokesman said deliveries were continuing from the Farmingdale plant and that he knew of no general grounding order.

Fiat Agrees on F-86K Assembly in Italy

A definite agreement was signed recently for assembly by Fiat in Italy of 50 North American F-86K all-weather fighters in execution of the general agreement (under the U. S. offshore procurement program) concluded in Washington in May 1953. The Italian contract is worth $22,500,000 although the total F-86K program will cost $54,500,000 (plus a substantial contribution from the Italian government).

It seems likely that only $8 million of the $22,500,000 contract will be spent in Italy; officials are currently studying whether it would be cheaper to spend the balance for engines, accessories, radar, etc., in the U. S. or have them built in Italy.

House Group Approves Bill Favoring Locals

House Commerce Committee has approved a bill "H.R. 8898" granting "grandfather" rights to the 14 local service airlines. Under the bill, introduced by Rep. Carl Hinshaw (R., Calif.), CAB would have to award permanent certificates unless it could prove local lines' personal service was inadequate or inefficient. CAB story opposed the measure.

AF Expected to Buy Two Versions of F-100

Two versions of the North American F-100—an interceptor and a fighter-bomber—will be bought by the Air Force, the manufacturer expects. The interceptor might be called the F-107, since the changes would justify a different number. In line with this thinking, North American believes that the F-86D should have been given a number of its own, to distinguish it from other F-86's.

U.K. Will Give 50 C-47's for NATO

Fifty RAF-surplus C-47 transports are to be given by the United Kingdom to the U. S. for use in the NATO program. Before being handed over they will be reconditioned by British overhaul companies. The 50 planes were among 600 purchased from the U. S. government in 1946 subject to the condition that they could not be sold outside the U.K. and British colonial dependencies without the consent of the U. S. government.

New Directive Defines Depreciation Policy

Department of Defense has defined its policy on depreciation of emergency facilities covered by certificates of necessity in a new directive issued by T. P. Pike, Assistant Secretary of Defense (Supply and Logistics).

Key paragraph in the amended order reads as follows:

"6. For the purpose of cost computations in negotiated contract pricing, true depreciation, which includes any extraordinary obsolescence reasonably assignable to the emergency period, is allowable. Any accelerated amortization of depreciation . . . in excess of true depreciation, regardless of whether such excess is included in tax amortization certificates, is not allowable . . . "

The policy that cost determination is a function of the procurement agency concerned is recognized in the order. Instructions for implementing this policy will be issued within 45 days.

150,000-Ton Titanium Goal Asked in Senate

Annual production of 150,000 tons of titanium has been recommended by a Senate subcommittee investigating the availability and production of the lightweight metal (see page 24). Current production is estimated at 2000 tons, with an annual total of 5000 tons hoped for by the end of the year.

Prospects for Airport Aid Money Seem Dim

Prospects for the Administration's supplemental request for $22 million in airport aid money looked dim as hearings opened in the Senate. Justification of the sum was begun by Under Secretary of Commerce Robert B. Murray, and turned over to CAA Administrator Fred B. Lee.

No detailed program of how the money would be spent was submitted, a fact that provoked astonishment in some senators. Lee stated that $22 million was chosen as an amount that could be administered effectively and economically, that no more than $5 million would actually be spent during fiscal 1955.

47,000-lb. Take-Off Weight Goal for C-46

Target of the C-46 improvement program of the Aircraft Engineering Foundation under new rules adopted by the Civil Aeronautics Board calls for a 47,000-pound gross weight, according to Monte Snedeker, AEF president.

Original 48,000-pound goal had to be scaled down when CAB did not recognize the Foundations proposal that any climb rules required should take into account the no-flap take-off condition on the C-46. AEF had contended that rules in CAR 4b are written around aircraft using take-off flaps and therefore should not apply. (See earlier story on page 20.)

Airport Design Study Started by Defense

More efficient airport design and construction standards are the goal of a new study instituted by the Department of Defense under direction of Franklin G. Floete, Assistant Secretary of Defense (Properties and Installations). Industry experts chosen to assist in the project include: Charles Froesch, Eastern Air Lines v.p. of engineering; William Littlewood, American Airlines v.p. of research; Vice Admiral J. B. Moss (Ret.), consultant to Bell Aircraft; Lt. Gen. E. C. Whitehead, USAF (Ret.); and Maj. Gen. J. M. Weikert, USAF (Ret.).

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